

93 00406

# RESOURCES ELEMENT

## ADVANCE PLANNING PROGRAM

INSTITUTE OF GOVERNMENTAL  
STUDIES LIBRARY

FEB 23 1993

UNIVERSITY OF CALIFORNIA



ENVIRONMENTAL MANAGEMENT AGENCY

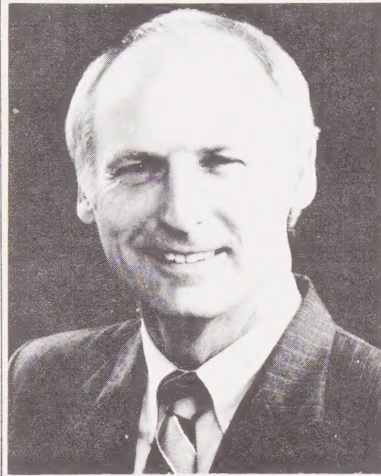
# COMPONENT II



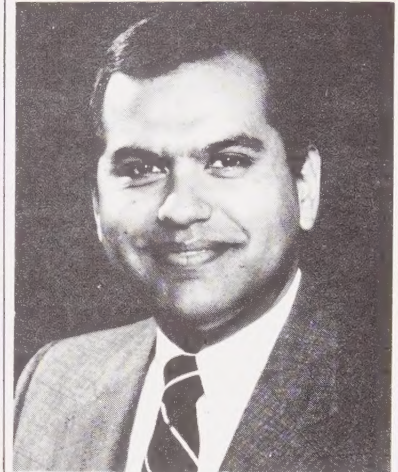
# COUNTY OF ORANGE BOARD OF SUPERVISORS



Harriett M. Wieder  
Second District

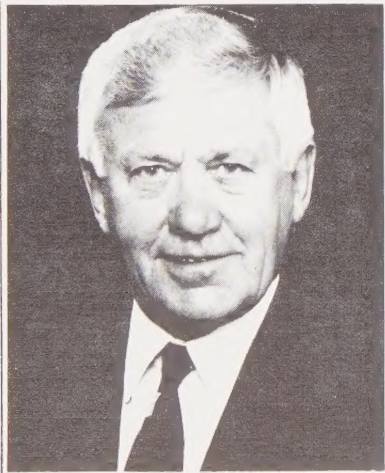


Roger R. Stanton  
Chairman  
First District

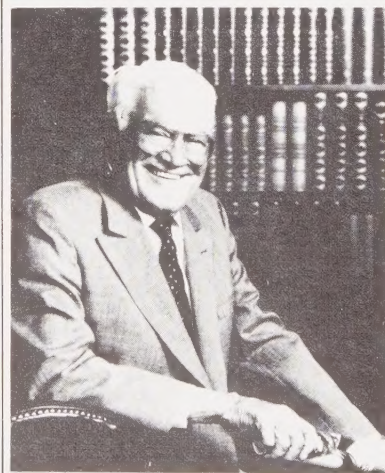


Gaddi H. Vasquez  
Third District

1992



Don R. Roth  
Fourth District



Thomas F. Riley  
Fifth District



COMPONENT II  
ADVANCE PLANNING PROGRAM  
RESOURCES ELEMENT

County of Orange  
Environmental Management Agency  
Advance Planning Division

April 18, 1984

(GENERAL PLAN MODERNIZATION)

Board of Supervisors Resolution  
No. 84-551

Revised: 5/22/85 Resolution No. 85-791/RES 85-1  
11/13/85 Resolution No. 85-1620/RES 85-3  
2/19/86 Resolution No. 86-193/RES 85-2  
5/6/87 Resolution No. 87-621/RES 87-1  
9/28/88 Resolution No. 88/1355/RES 88-1  
5/24/89 Resolution No. 89-793 RES 89-1  
5/7/91 Resolution No. 91-533 RES 91-1





ORANGE COUNTY PLANNING COMMISSION

First District	A. Earl Wooden
Second District	Roger Slates
Third District	Steven Nordeck
Fourth District	Earl C. McBurney
Fifth District	Thomas Moody

ENVIRONMENTAL MANAGEMENT AGENCY

Michael M. Ruane, Director

Thomas B. Mathews, Director of Planning

Robert G. Fisher, Director of Harbors, Beaches and Parks

George T. Britton, Manager, Advance Planning Division

Robert Hamilton, Manager, Program Planning Division



RESOURCES ELEMENT PROJECT STAFF

ADVANCE PLANNING DIVISION

George Britton, Manager  
Michael Wellborn, Chief, Santa Ana River Project

PROGRAM PLANNING DIVISION

Robert Hamilton, Manager  
Eric Jessen, Chief, Planning and Acquisition Program  
Robert Selway, Chief, Historical & Cultural Program  
Kenneth Scattergood, Chief, Program Support and Special Projects

GRAPHICS

Wayne Curl, Supervisor





## TABLE OF CONTENTS

### Chapter One: Introduction

A. overview	RES-1-1
B. Scope and Purpose of Element	RES-1-1
C. Relationship to the Advance Planning Program	RES-1-3
1. Component I: Long-Range Planning Framework	RES-1-3
2. Component II: The General Plan Elements	RES-1-3
3. Component III: Community Profiles	RES-1-3
D. Related Planning Programs and Agencies	RES-1-3
1. Orange County Preferred-III Demographic Projections	RES-1-4
2. National and State Planning Agencies	RES-1-4

### Chapter Two: Inventory of Current and Future Prospects

A. Introduction	RES-2-1
B. County Growth Trends	RES-2-1
1. Data Sources	RES-2-1
2. Development Patterns and Trends	RES-2-4
C. Characteristics of Existing County Resources	RES-2-9
1. Natural Resources	RES-2-9
a. Agricultural Resources	RES-2-9
b. Mineral Resources	RES-2-15
c. Wildlife and Vegetation Habitat	RES-2-22
d. Landforms	RES-2-26
2. Energy Resources	RES-2-33
a. Introduction	RES-2-33
b. Identification of County Energy Resources	RES-2-33
c. Existing and Projected Consumption Patterns	RES-2-38
d. Energy Resource Utilization by Sector	RES-2-44
3. Water Resources	RES-2-48
a. Introduction	RES-2-48
b. Identification of County Resources	RES-2-48
c. Water Resources Management	RES-2-57
d. Water Use in Orange County	RES-2-62
4. Air Resources	RES-2-65
a. Introduction	RES-2-65
b. Historical Background	RES-2-65
c. Air Quality Overview	RES-2-68
d. Air Quality Analysis	RES-2-71
e. County and Regional Air Resources Management	RES-2-77
5. Open Space	RES-2-80
a. Introduction	RES-2-80
b. Open Space/Conservation Program Implementation to Date	RES-2-80
c. Summary of Inventory Data	RES-2-81
d. Conclusion	RES-2-86
6. Cultural-Historic Resources	RES-2-88
a. Overview	RES-2-88
b. Background	RES-2-88
c. Location/Sensitivity	RES-2-89

### Chapter Three: Constraints and Opportunities

A. Overview	RES-3-1
B. Constraints	RES-3-1
1. Environmental Constraints	RES-3-1
2. Governmental Constraints	RES-3-2
3. Economic and Market Constraints	RES-3-2
4. Legal Constraints	RES-3-2
C. Opportunities	RES-3-3
1. Environmental Opportunities	RES-3-3
2. Governmental Opportunities	RES-3-3
3. Economic and Market Opportunities	RES-3-4
4. Legal Opportunities	RES-3-4

### Chapter Four: Natural Resources Component

A. Overview	RES-4-1
B. Goals and Objectives	RES-4-1
C. Policies	RES-4-2
D. Implementation Programs	RES-4-3

### Chapter Five: Energy Resources Component

A. Overview	RES-5-1
B. Goals, Objectives and Policies	RES-5-1
C. Implementation Programs	RES-5-4

### Chapter Six: Water Resources Component

A. Overview	RES-6-1
B. Goal, Objectives and Policies	RES-6-1
C. Implementation Programs	RES-6-2

### Chapter Seven: Air Resources Component

A. Overview	RES-7-1
B. Goals and Objectives	RES-7-1
C. Policies	RES-7-1
D. Implementation Programs	RES-7-1

### Chapter Eight: Open Space Component

A. Introduction	RES-8-1
B. Goals, Objectives and Policies	RES-8-4
C. Open Space/Conservation Program Map	RES-8-5
D. Implementation Programs	RES-8-14

### Appendices

1. Open Space Dedication Definitions	RES-8-21
2. Description of Financing Program Funds	RES-8-23



## Chapter Nine: Cultural and Historic Resources Component

A. Overview	RES-9-1
1. Background	RES-9-1
2. Purpose	RES-9-3
B. Goals, Objectives and Policies	RES-9-4
C. Implementation Programs	RES-9-8

## Appendices

A. Resources Element Implementation Programs	RES-A-1
B. Related Planning Agencies	RES-B-1
C. Mineral Resources Background Material: SMARA and Related Programs	RES-C-1
D. Chronology of Air Quality Legislation and Planning	RES-D-1
E. Comparative Control Measures of the 1988, 1982 and 1979 Air Quality Management Plan (AQMP)	RES-E-1
F. List of Acronyms/Abbreviations	RES-F-1
G. Bibliography	RES-G-1
H. Board of Supervisors Resolution	RES-H-1

## LIST OF TABLES, CHARTS AND MAPS

### Tables

2-1	Orange County Demographic Projections	RES-2-2
2-2	Projected Population Growth Trends	RES-2-5
2-3	Projected Housing Growth Trends	RES-2-7
2-4	Projected Employment Growth Trends	RES-2-10
2-5	Aggregate Resources of the Orange County P-C Region	RES-2-20
2-6	Projected Aggregate Consumption Orange County Region	RES-2-21
2-7	Water Volume Comparisons	RES-2-48
2-8A	1985 Emissions in Orange County	RES-2-75
2-8B	2010 Emissions in Orange County	RES-2-76
2-9	Regional Open Space	RES-2-82
2-10	Non-Regional Open Space	RES-2-84
2-11	Other Open Space	RES-2-85
2-12	Total Open Space - All Sources	RES-2-87

### Charts

2-1	Orange County Socio-economic Projections	RES-2-3
2-2	Countywide Energy Consumption	RES-2-39
2-3	Energy Demand in Orange County	RES-2-41
2-4	Electric Power Generation by Energy Source/Technology	RES-2-42
2-5	Natural Gas Supplies Available to Southern California	RES-2-43
2-6	Energy Use by Sector	RES-2-45
2-7	Residential Energy Consumption	RES-2-46
2-8	Orange County Water Resource Sources	RES-2-49



### Charts (continued)

2-9	Orange County Groundwater Basin and History	RES-2-58
2-10	Water Use in Orange County	RES-2-63

### Maps

1-1	Regional Statistical Areas	RES-1-2
2-2	Population	RES-2-6
2-3	Housing Units	RES-2-8
2-4	Employment	RES-2-11
2-5	Important Farmlands of Orange County (Generalized)	RES-2-14
2-6	Orange County Agricultural Preserves (Generalized)	RES-2-16
2-7	Orange County Mineral Resources (Generalized)	RES-2-18
2-8	Wildlife Habitat Areas (Generalized)	RES-2-23
2-9	Orange County Landforms (Generalized)	RES-2-27
2-10	Orange County Energy Resources (Generalized)	RES-2-34
2-11	Orange County Groundwater Basin	RES-2-51
2-12	California Water Delivery Systems	RES-2-55
2-13	Paleontology - General Areas of Sensitivity	RES-2-90
2-14	Prehistoric Archaeology - General Areas of Sensitivity	RES-2-92
2-15	Orange County's Historical Areas	RES-2-93

### Oversize Figures

1	Open Space/Conservation Program Map	Fold-out
2	Open Space/Conservation Program Implementation	Fold-out





## CHAPTER ONE: INTRODUCTION

### A. Overview

The Resources Element, one of eight elements of the General Plan, contains official County policies on the conservation and management of resources. The eight elements provide the mid-range (15- to 20-year) portion of the planning program and focus on objectives and policies at the Regional Statistical Area (RSA) level. (See Map 1-1.) All elements have the same horizon year (2000) and growth assumptions to ensure internal consistency. The Resources Element identifies policies and programs in other County General Plan Elements that affect resources and provides guidance for future resource planning studies for the unincorporated portion of the county.

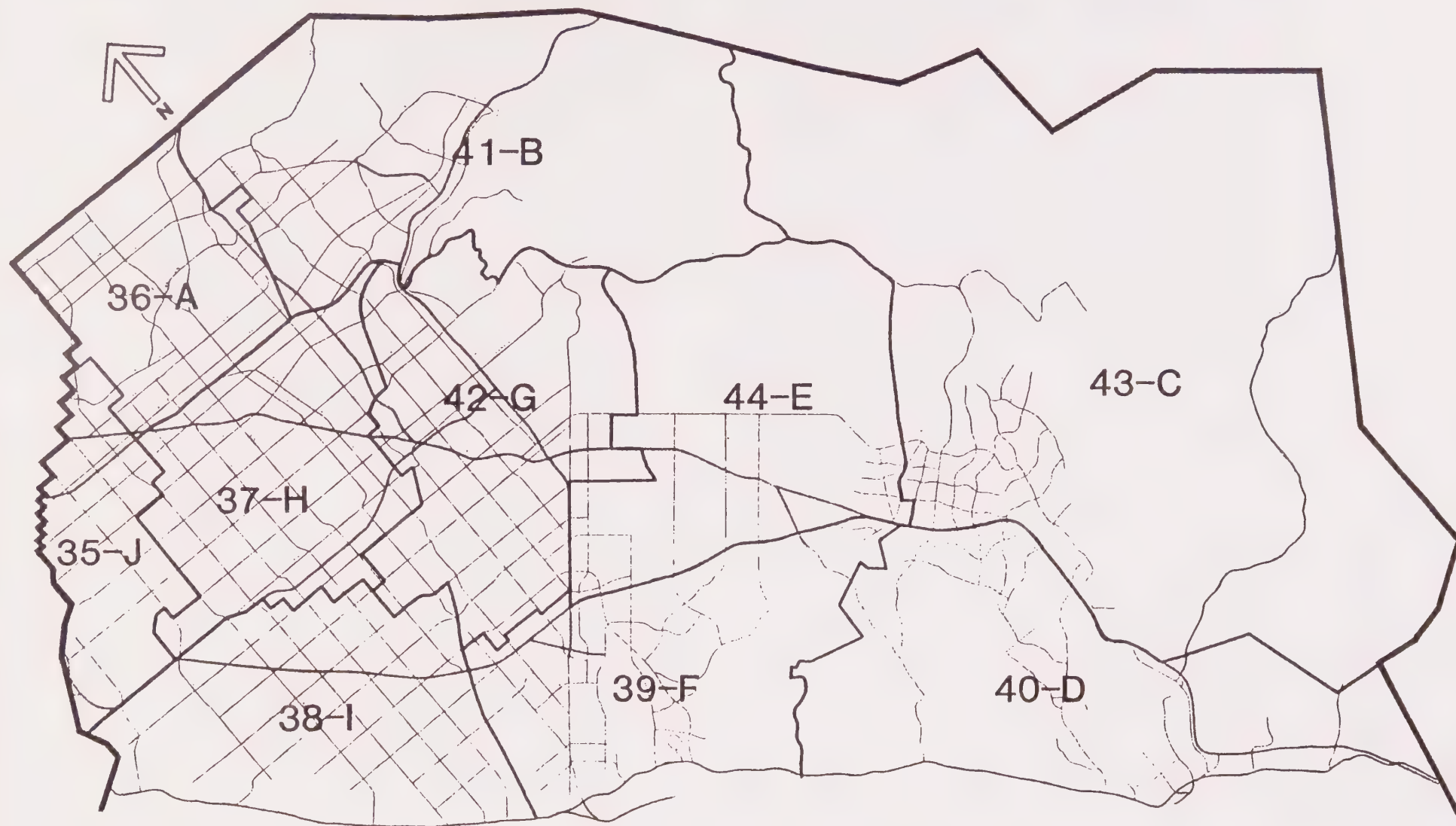
The Resources Element text is divided into eight chapters. The first chapter provides an overview of the scope and purpose of the Resources Element. Chapter Two is an inventory of existing and projected future growth and development patterns, and the resource characteristics of the county. Future demands, planning constraints and the resultant resource deficiencies are presented in Chapter Three. Chapters Four through Eight ("The Components") each focus on a separate resource category: natural resources, energy, water, open space, and cultural-historic. In addition to goals and objectives, these chapters provide implementation policies and programs that address the constraints and deficiencies identified in Chapter Three. Reference materials and supporting data for the Resources Element text are contained in the appendices.

### B. Scope and Purpose of the Element

The Resources Element sets forth a comprehensive strategy for the development, management, preservation and conservation of resources that are necessary to meet Orange County's existing and future demands. This strategy is expressed as an integrated framework of resource goals, policies, and programs. The goals of the element are consistent with state requirements, and are primarily based on quantified objectives, an assessment of resource needs, and identification of problems impeding the development, management, preservation or conservation of county resources. The policies and programs of the Resources Element form an effective implementation plan to meet the established goals. Consequently, the Resources Element serves to guide and direct local government decision-making in resource-related matters, and also facilitates coordination with regional, state, and federal resource policies and programs.

The primary objectives of the Resources Element development effort include:

1. Restructuring the 1978 versions of the Open Space and Conservation Elements into a single Resources Element text, a chapter of Component II of the Advance Planning Program.



Orange County Regional Statistical Areas

2. Development of the Resources Element text in accordance with Section 65302 of the California Government Code.
3. Integration of the Resources Element with other General Plan Elements, particularly with respect to policies contained in the Land Use, Recreation and Housing Elements.

C. Relationship to the Advance Planning Program

1. Component I: Long-Range Planning Framework

Component I provides the long-range planning framework and general goals for the Advance Planning Program. Included within this document are broad resource goals that provide a basis for the more specific goals and policies contained in the Resources Element.

2. Component II: The General Plan Elements

The General Plan addresses a 15- to 20-year time frame. Component II is a compendium of eight General Plan Elements, including the Resources Element.

A major goal of the Resources Element is to promote the development, management, preservation and conservation of resources to meet the current and projected needs of Orange County. While this goal is a high priority, it must be achieved while maintaining internal consistency among the other elements of the General Plan as required by state law. Therefore, the Resources Element does not replace or supercede any of the other General Plan elements; instead, the Resources Element addresses, amplifies and supports open space and resource concerns identified in the other General Plan elements.

The Resources Element is implemented by various coordinated programs that are developed to support and carry out its goals, quantified objectives and policies. The Resources Element is the most current expression of County resource policies. It achieves internal consistency with the other General Plan elements through the use of common socio-economic projections and assumptions and the pursuit of common major goals such as balanced land use and conservation of natural resources.

3. Component III: Community Profiles

The Community Profiles are the most detailed portions of the Advance Planning Program. They are short-range in scope and focus on community-level policies and programs. The Community Profiles depict existing and proposed open space, conservation, and natural resource areas and inventory the geographic distribution of these resources.

D. Related Planning Programs and Agencies

This section summarizes the various federal, State, regional, local, and non-governmental agencies and programs that influence County resource



planning activities. For a complete listing of related planning agencies, see Appendix B.

## 1. Orange County Preferred-III Demographic Projections

Orange County Preferred-III (OCP-III) contains demographic projections for housing and population. The projections, which have been adopted by the Board of Supervisors, provide a single data reference for policy-making and program planning.

OCP-III is used throughout the General Plan (e.g., Land Use, Housing, and Transportation Elements). Moreover, the projections are used by the Orange County Transportation Commission, Orange County Transit District, and County of Orange for all long-range planning and budgeting activities.

Regional Statistical Areas (RSAs) are the geographic units used for the development of these policy projections. These projections are disaggregated to Community Analysis Areas (CAAs) for the purpose of performing Development Monitoring Program (DMP) and Areawide Fiscal Impact System (AFIS) analyses. DMP and AFIS analyses are conducted by the County Administrative Office in order to determine the impact of existing and projected development on infrastructure facilities and fiscal resources. CAA projections are disaggregated by EMA to the Traffic Analysis Zone (TAZ) level for transportation planning purposes.

OCP-III served as the County's official input to the SCAG-82 Regional Growth Forecast Policy. SCAG-82 will be implemented through SCAGs (Southern California Association of Governments) regional planning activities, project review, and coordination with city, county, state and federal governments. The adopted growth forecast is utilized in the development of the Air Quality Management Program and the Regional Transportation Plan, which are mandated by federal and state law.

## 2. National and State Planning Agencies

While many federal, State, and private entity plans and decisions may impact Orange County planning activities, the U.S. Departments of Interior and Agriculture, and the California Resources Agency wield special influence upon County resource planning programs.

The U. S. Departments of the Interior and Agriculture are responsible for the majority of the various federal resource management programs. The Department of Agriculture provides resource management services for many areas in the county, in particular the Cleveland National Forest. The U. S. Department of the Interior focuses on resource development and conservation issues such as fish and wildlife protection and petroleum extraction on federal lands.

The California Resources Agency is an umbrella agency comprised of the numerous State functions that either plan or manage the use and protection of California's resources. Included within this agency are

the California Energy Commission and the Departments of Conservation and Fish and Game. These agencies, and the many others located in the Resources Agency, have considerable influence on County resource planning activities and often mandate specific County programs to promote statewide resource goals (e.g., Local Coastal Plans, Air Quality Management Plans).





## CHAPTER TWO: INVENTORY OF CURRENT CONDITIONS AND FUTURE PROSPECTS

### A. Introduction

This chapter provides an insight into current county growth conditions and the manner in which future growth may be influenced by the preservation, development, and utilization of natural, energy, water, open space, and cultural-historic resources. The chapter is divided into two sections. The first section presents a detailed inventory of current conditions and projected levels of population, housing and employment. The second section presents an inventory and analysis of county resources for both current and projected future conditions.

### B. County Growth Trends

#### 1. Data Sources

For the purposes of the General Plan, 1980 was selected as the baseline for data collection and analysis. The prime advantage of using 1980 as the base year is the availability of Census data, which serve as benchmarks for population, housing, and income trends. In addition, the primary source of land use data -- the Orange County Land Cover Survey -- was compiled in 1980. This survey was conducted by the Environmental Systems Research Institute in cooperation with the County and Southern California Edison.

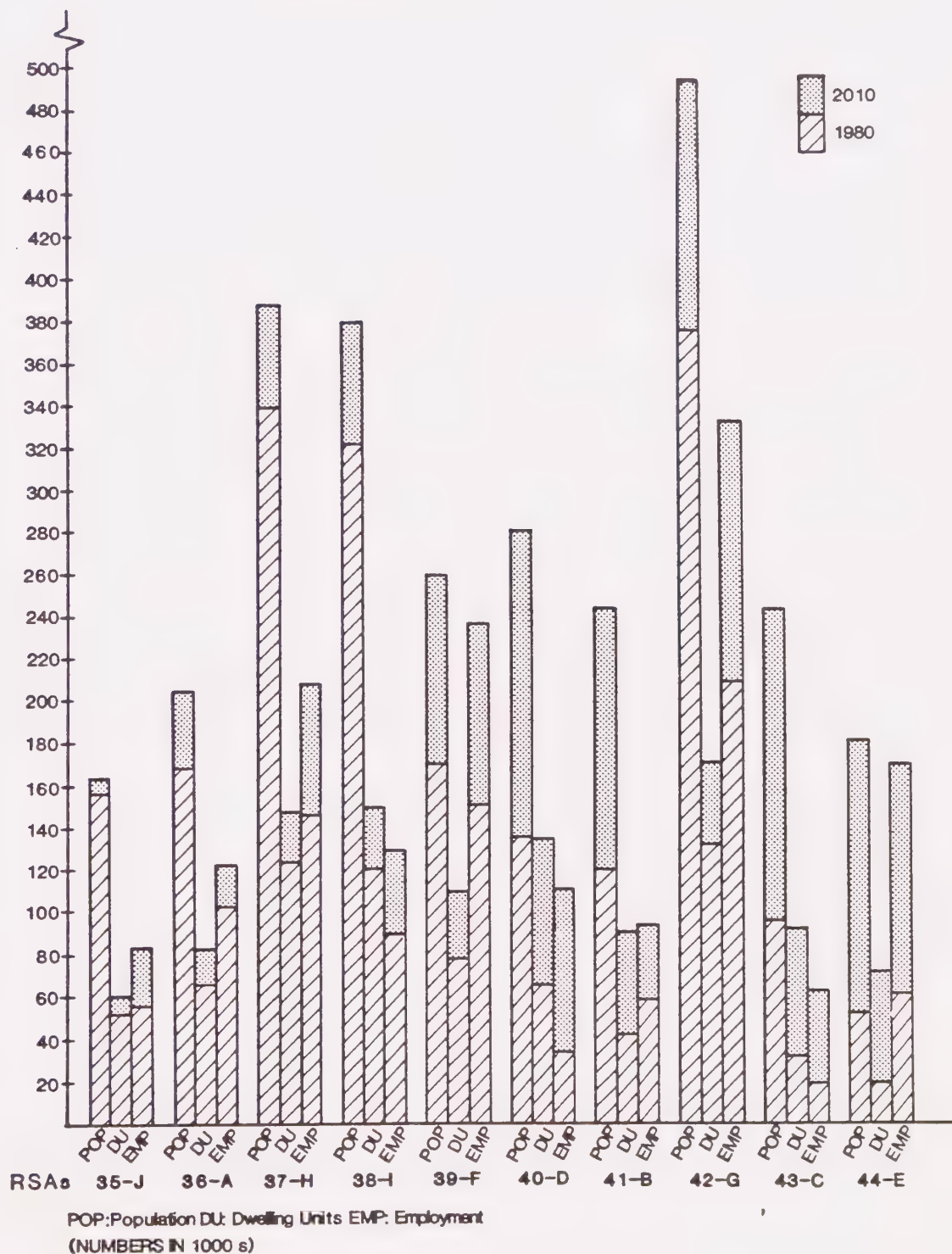
The horizon year of the County's General Plan is 2010. All projections and analyses of physical and socioeconomic conditions in the county are keyed to this 30-year time frame. Table 2-1 on the following page contains a summary of population, housing and employment trends that are expected to occur during the study period. These projections are broken down by Regional Statistical Area (RSA). Chart 2-1 graphically illustrates the relationships between RSAs for these three variables.

The source of the demographic projections is the Orange County Preferred (OCP) forecast. The most recent iteration known as Orange County Preferred-1985 (OCP-85) was adopted by the Board of Supervisors on February 19, 1985. In addition to its use by County agencies, OCP-85 is the County's official input to the SCAG Regional Growth Forecast Policy. The OCP projections can be amended in the following ways: 1) concurrent with the processing of a project that is inconsistent with the projections; 2) through annual review as a part of the Development Monitoring Program; or 3) as part of the two to three-year SCAG Regional Development Guide update process.

TABLE 2-1  
ORANGE COUNTY DEMOGRAPHIC PROJECTIONS

<u>RSA</u>	<u>POPULATION</u>		<u>HOUSING</u>		<u>EMPLOYMENT</u>	
	<u>1980a/</u>	<u>2010b/</u>	<u>1980a/</u>	<u>2010b/</u>	<u>1980a/</u>	<u>2010b/</u>
35-J	156,248	165,400	52,454	59,800	55,200	86,400
36-A	168,782	202,300	64,578	80,900	100,600	125,600
37-H	338,682	389,200	124,875	145,700	146,000	212,000
38-I	321,137	378,900	119,038	150,900	90,300	133,500
39-F	170,644	257,400	74,920	112,500	146,800	237,200
40-D	134,696	279,800	66,072	134,600	32,600	109,900
41-B	116,686	245,900	39,276	86,200	54,900	94,200
42-G	377,316	488,800	130,103	167,400	211,600	336,100
43-C	95,954	242,300	32,885	93,500	17,400	62,800
44-E	52,564	181,100	17,313	69,200	60,000	172,800
COUNTY						
TOTAL	1,932,709	2,831,100	721,514	1,100,700	915,400	1,570,500

Sources: a/ 1980 Census  
b/ County of Orange: OCP-85 Projections





## 2. Development Patterns and Trends

During the past 20 years the focal point of Orange County's growth has shifted gradually southward. In the 1950s and 60s the majority of new development occurred in the northern areas of the county such as Anaheim, Fullerton, Orange, Westminster and Fountain Valley. During the 1970s, as vacant land became more scarce in these northern areas, the center of growth shifted to the south with the rise of new communities like Irvine, Mission Viejo, and Laguna Niguel. For analytical purposes, North County is generally considered to be the area north and west of the Costa Mesa Freeway (State Highway 55) and contains RSAs 35-J, 36-A, 37-H, 38-I, 41-B, and 42-G. South County is represented by RSAs 39-F, 40-D, 43-C and 44-E.

Table 2-2 and Map 2-2 compare the projected population growth trends in the north and south portions of the county. During the 30-year study period, about 56 percent of the county's net population growth is projected to occur in the southern RSAs. Although the rate of growth in North County is declining, this area will still contain the majority of the county's population throughout the study period. In 1980, 77 percent of the county's 1,932,709 people lived in the north. By 2010, it is expected that this figure will fall to 66 percent.

The difference in growth between north and south becomes more apparent when the internal growth rates of the two areas are compared. Between 1980 and 2010, the population of northern portion of the county is expected to grow by 391,649, or 26 percent. South County will add 506,742 persons during the same period; this represents an increase of 112 percent, however.

The projected increase in the county's housing stock reflects the population trend identified above. (See Table 2-3 and Map 2-3.) Due to a projected decline in the average household size from 2.68 to 2.57 persons per dwelling unit countywide, the number of new units expected to be built between 1980 and 2010 represents a slightly higher percentage increase than that for the population itself. Consequently, while the county's population is projected to rise by 46 percent (898,391 persons) between 1980 and 2010, the housing stock is expected to increase by 52 percent (379,186 units) over the same interval.

During the next two decades, the spatial distribution of new residential construction is expected to be skewed slightly toward South County. Fifty-eight percent of the projected 379,186 new units built in the county between 1980 and 2010 are expected to be located

TABLE 2-2

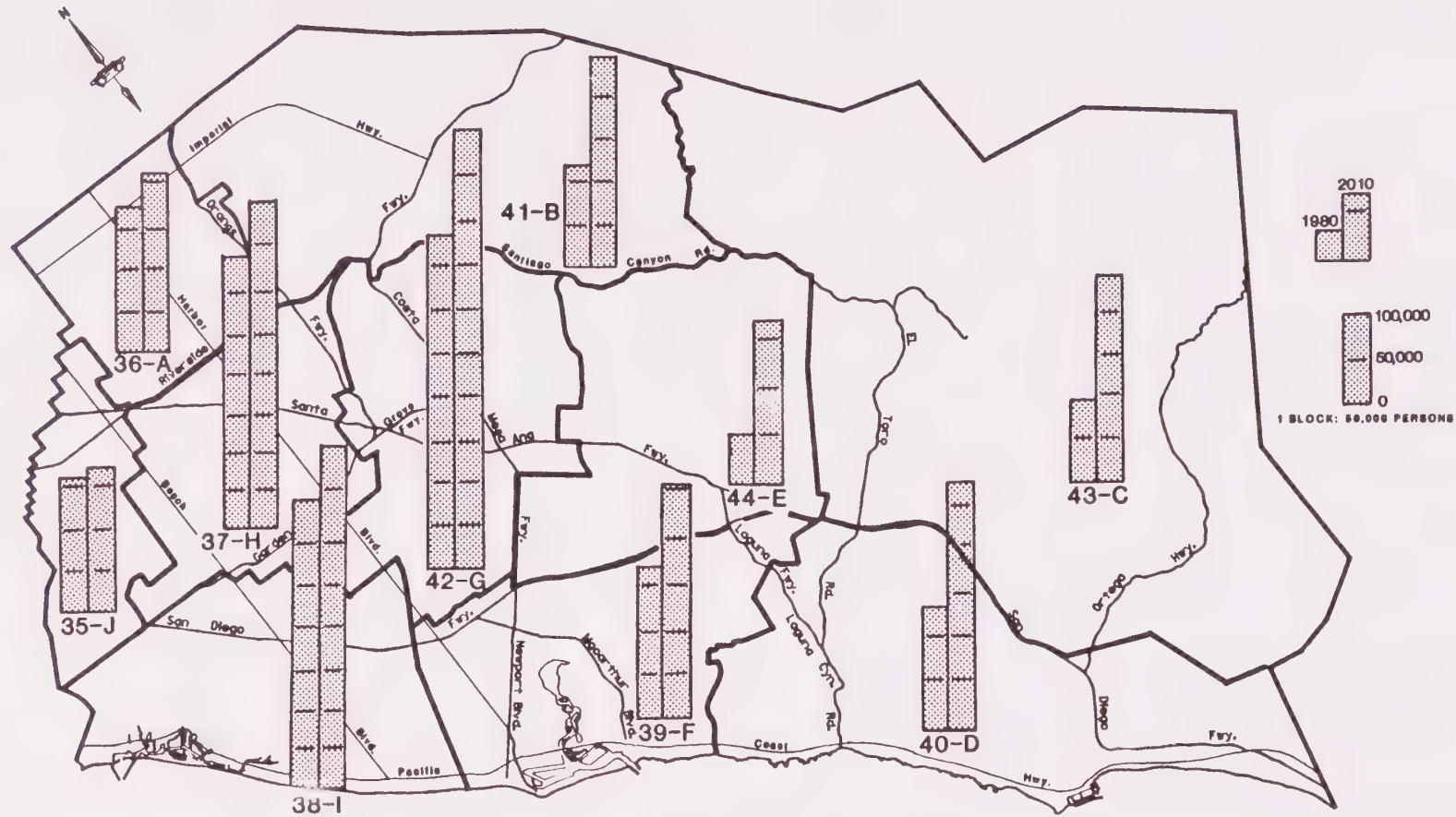
PROJECTED POPULATION GROWTH TRENDS  
NORTH COUNTY vs. SOUTH COUNTY  
1980 - 2010

	<u>North County<sup>a/</sup></u>			<u>South County<sup>b/</sup></u>			<u>County Total</u>		
	<u>1980</u>	<u>2010</u>	<u>Change</u>	<u>1980</u>	<u>2010</u>	<u>Change</u>	<u>1980</u>	<u>2010</u>	<u>Change</u>
Total Population	1,478,851	1,870,500	+26%	453,858	960,600	+112%	1,932,709	2,831,100	+46%
Pct. of Total Population	77%	66%	-11%	23%	34%	+11%	100%	100%	-
Growth	-	-	391,649	-	-	506,742	-	-	898,391
Pct. of Growth	-	-	44%	-	-	56%	-	-	100%
Average Household Size	2.79	2.71	- 0.08	2.37	2.34	-0.03	2.68	2.57	-0.11

Notes: a/ Includes RSAs 35-J, 36-A, 37-H, 38-I, 41-B and 42-G

b/ Includes RSAs 39-F, 40-D, 43-C and 44-E

Sources: 1980 Census  
County of Orange: OCP-85 Projections  
Orange County EMA/Advance Planning Division



# POPULATION By Regional Statistical Area

SOURCE: Orange County

OCP-85

MAP  
2-2



TABLE 2-3

PROJECTED HOUSING GROWTH TRENDS  
NORTH COUNTY vs. SOUTH COUNTY  
1980 - 2010

	<u>North County<sup>a/</sup></u>			<u>South County<sup>b/</sup></u>			<u>County Total</u>		
	<u>1980</u>	<u>2010</u>	<u>Change</u>	<u>1980</u>	<u>2010</u>	<u>Change</u>	<u>1980</u>	<u>2010</u>	<u>Change</u>
Total Units	530,324	690,900	+30%	191,190	409,800	+114%	721,514	1,100,700	+53%
Pct. of Total	74%	63%	-11%	26%	37%	+11%	100%	100%	-
Growth	-	-	160,576	-	-	218,610	-	-	379,186
Pct. of Growth	-	-	42%	-	-	58%	-	-	100%

Notes: a/ Includes RSAs 35-J, 36-A, 37-H, 38-I, 41-B and 42-G

b/ Includes RSAs 39-F, 40-D, 43-C and 44-E

Sources: 1980 Census  
County of Orange: OCP-85 Projections  
Orange County EMA/Advance Planning Division

SOURCE: Orange County

MAP  
2-3

in the southern area. Although the northern portion of the county is growing much less rapidly than the south on a percentage basis, by 2010 nearly two-thirds (63 percent) of all housing units will still be found in the northern RSAs.

County employment patterns are very similar to the population and housing distributions described above. (See Table 2-4 and Map 2-4.) As of 1980, 72 percent of the county's 915,400 jobs were located in North County. This is very similar to the population distribution identified in Table 2-2. By 2010, a moderate southward shift in the employment distribution is projected to occur. The magnitude of this shift is nearly equal to the anticipated shift in population and housing. South County is projected to receive about 50 percent of the new jobs created between 1980 and 2010. Again, this figure is similar to the projected differential growth in population and housing. Overall, the county's employment base is projected to grow faster than population, with a 72 percent gain between 1980 and 2010. This compares to a projected population growth of 46 percent during the same period.

As the county continues to grow, the pressure on local resources will increase. Urbanization affects agriculture, parkland, wildlife habitat and natural vegetation most directly, since these resources often compete with development for the same land. All resources will experience increasing demand as the urbanized area expands, but the methods employed to meet these demands will vary. For example, an adequate supply of land resources for parks already exists in the unincorporated areas, but it is necessary that affirmative steps be taken to set aside parks and recreation areas during the planning and development review process. The demand for some other resources, such as energy and water, cannot be met entirely within the borders of Orange County. The County must ultimately depend on other agencies for the provision of an adequate supply of these resources. One of the major purposes of the Resources Element is to provide a clear statement of County policy so that timely steps can be taken to ensure that an adequate supply of all necessary resources will be available to meet the county's growth needs.

## C. Characteristics of Existing County Resources

### 1. Natural Resources

This section will present discussions related to agricultural resources, mineral resources, wildlife and vegetation habitat, air resources and landforms.

#### a. Agricultural Resources

##### 1) Introduction

Orange County, once a rural county supported primarily by an agricultural economy, has long been a notable agricultural



TABLE 2-4

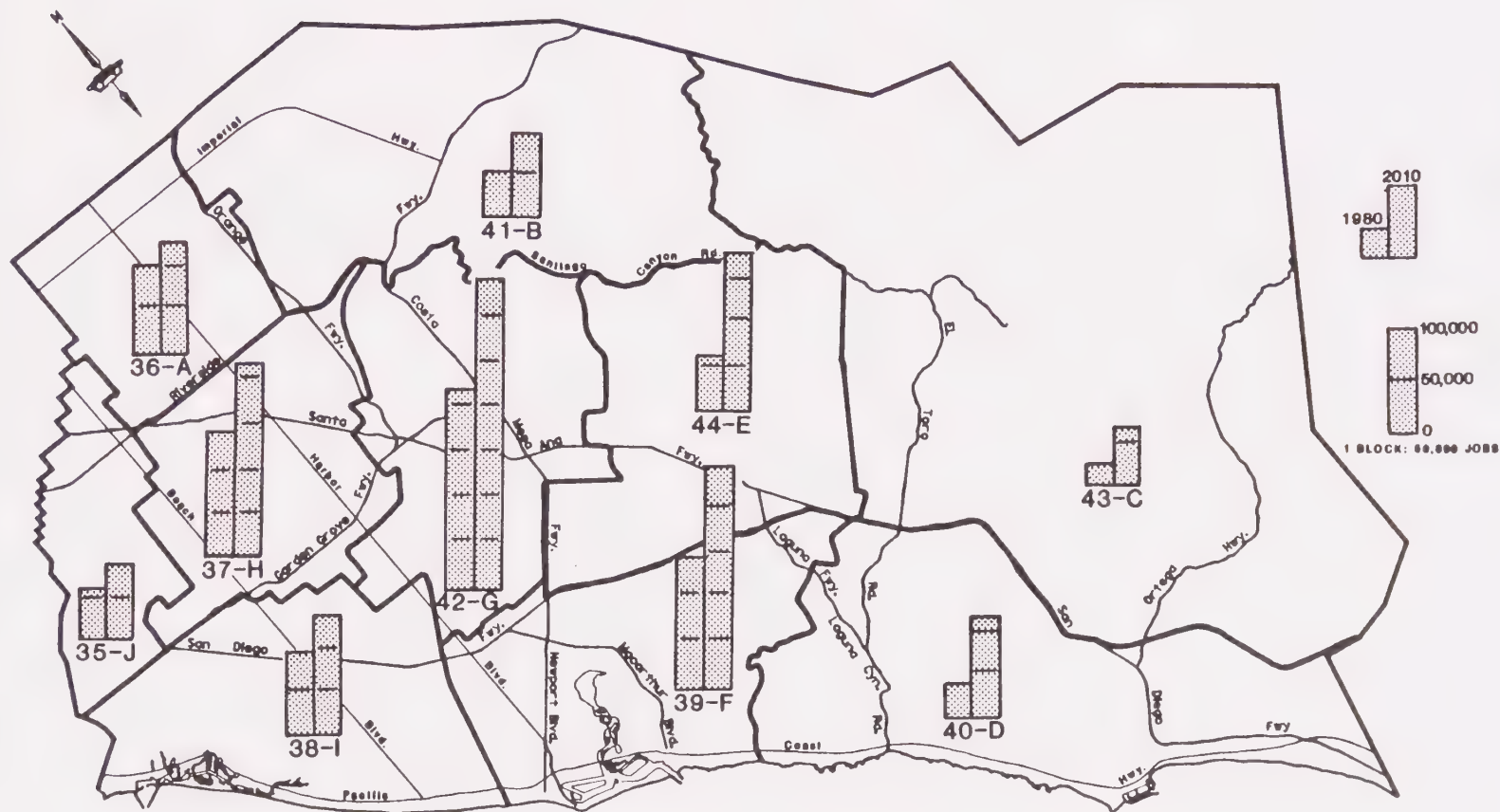
PROJECTED EMPLOYMENT GROWTH TRENDS  
NORTH COUNTY vs. SOUTH COUNTY  
1980 - 2010

	<u>North County<sup>a/</sup></u>			<u>South County<sup>b/</sup></u>			<u>County Total</u>		
	<u>1980</u>	<u>2010</u>	<u>Change</u>	<u>1980</u>	<u>2010</u>	<u>Change</u>	<u>1980</u>	<u>2010</u>	<u>Change</u>
Total Employment	658,600	987,800	+50%	256,800	582,700	+127%	915,400	1,570,500	+72%
Pct. of Total Employment	72%	63%	-9%	28%	37%	+9%	100%	100%	-
Growth	-	-	329,200	-	-	325,900	-	-	655,100
Pct. of Growth	-	-	50%	-	-	50%	-	-	100%

Notes: a/ Includes RSAs 35-J, 36-A, 37-H, 38-I, 41-B and 42-G

b/ Includes RSAs 39-F, 40-D, 43-C and 44-E

Sources: Orange County EMA/Advance Planning Division  
County of Orange OCP-85



SOURCE: Orange County  
OCP-85

MAP  
2-4

community of statewide and national significance. Fruits and vegetables grown in the county were shipped throughout the United States and abroad. The county's agricultural communities have experienced tremendous growth and decline over the years. These communities are presently experiencing urban growth.

Major crops grown during the early 1900s included oranges, apricots and walnuts. Also important were peaches, apples, sugar beets, beans, alfalfa, olives, potatoes and peppers. Agriculture was the county's number one industry and, by 1925, Orange County was number six in the state on the basis of crop value.

The 1930s and 1940s were marked by radical agricultural change. Apricot and walnut production decreased drastically as did the acreage devoted to sugar beets. However, citrus production reached a peak of over 75,000 acres. Steadily increasing in importance were truck crops and nursery products. This same period marked the temporary rise of cattle and poultry production.

Agriculture's decline, which began in the mid-1940s, was stemmed briefly during the 1950s. Though citrus production fell drastically, truck crops, nursery stock and strawberries grew dramatically both in acreage and dollar value. In the 1960s and 1970s Orange County experienced rapid suburbanization further reducing the county's agricultural land.

Significant amounts of agricultural land have been converted to urban development. Still, agriculture, from a dollar value standpoint, has done remarkably well on less than one-third the acreage cultivated twenty years ago. In 1981, 17 crop categories were million dollar enterprises. Further, Orange County agricultural products ranked 18th in dollar value among California's 58 counties.

## 2) Current Conditions

There are several unique features that have contributed to the county's continued agricultural successes. The predominately mediterranean climate is a major asset. This climate is characterized by: modest amounts of precipitation in the winter, summers nearly or completely dry; warm to hot summers with mild winter temperatures; and, nearly year-round sunshine. Further, this climate permits a longer growing season and enables county farmers to plant two or more crops a year on the same field as well as to harvest and ship their produce when other regions are dormant.

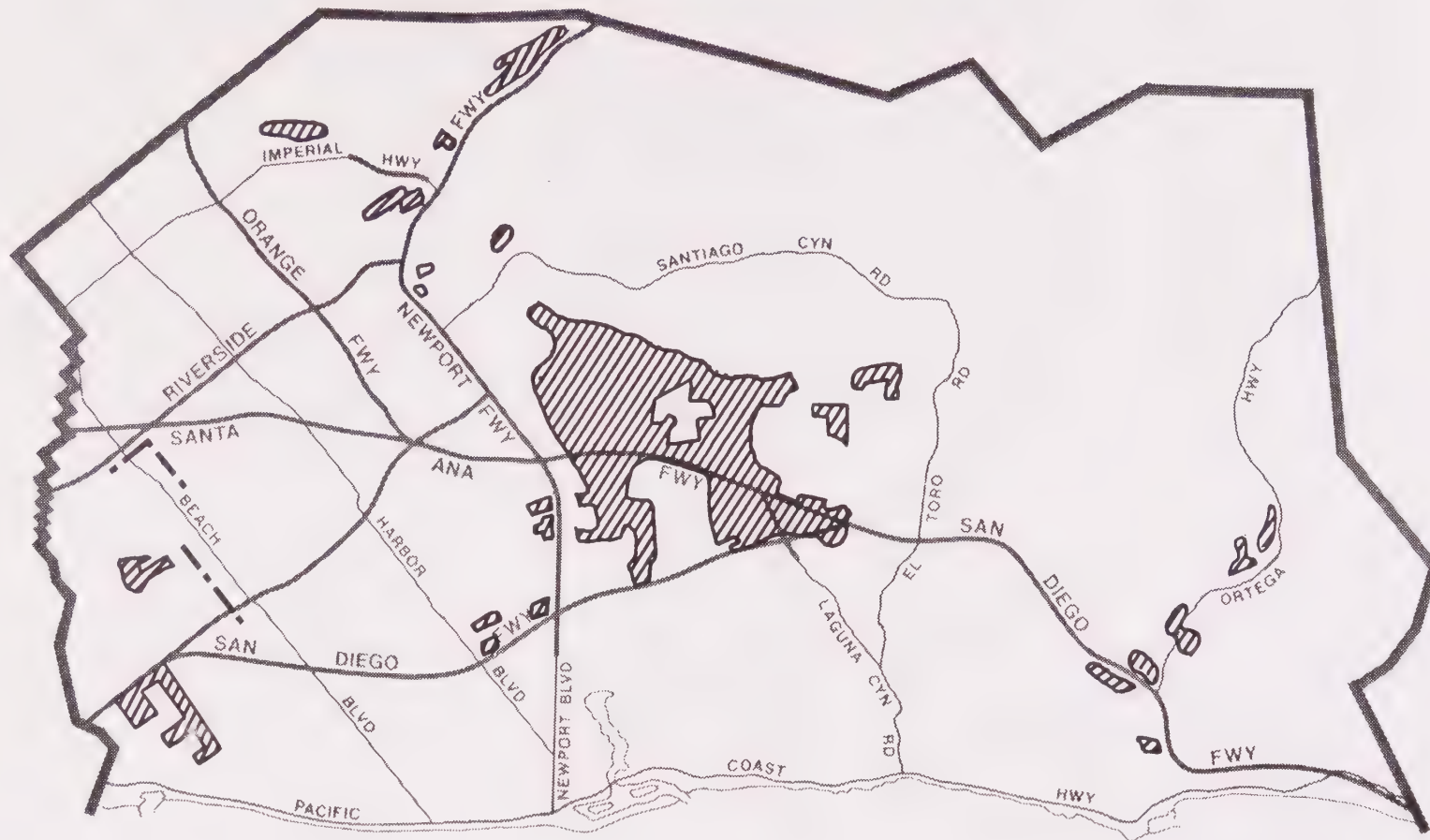
The other major county agriculture attribute is soil fertility. In 1982, over 34,000 acres were crop-producing. This figure is up 5,000 acres from 1980. Yearly fluctuations occur due to land lying fallow rather than an actual increase in agricultural acreage. In 1982, specialty crops such as strawberries, winter celery, tomatoes and avocados were





prominent. Other important crops included sweet corn, asparagus, cauliflower, green beans, cucumbers, lettuce, parsley and bell peppers.

Of the 34,000 crop acres farmed in 1982, approximately 26,000 acres were included in the land inventory and monitoring program maintained by the State Department of Conservation. This agency classifies important farmland by four categories: prime farmland, unique farmland, farmland of statewide importance and farmland of local importance. (See Map 2-5.) Through this process, the State can assist in the maintenance of these valuable resources. Following are the definitions of these four farmland categories.

- a) Prime farmland is land best suited for producing food, feed, forage, fiber and oilseed crops. It has the soil quality, growing season and moisture supply needed to produce sustained high yields of crops. Production should occur economically when the land is treated and managed (including water management), according to modern farming methods. Estimates show nearly 26,000 acres of prime farmland existed in 1982.
- b) Unique farmland is land other than prime farmland and farmland of statewide importance that is currently used for the production of specific high value food and fiber crops. It has the special combination of soil quality, location, growing season and moisture supply needed to produce sustained high yields and/or high quality yields of a specific crop when treated and managed according to modern farming methods. Examples of such crops are citrus, olives, strawberries, avocados, fruit and vegetables. In 1982, approximately 2,000 acres of unique farmland existed.
- c) Farmland of statewide importance is land other than prime farmland that has a good combination of suitable physical terrain and soil for producing food, feed, forage, fiber and oilseed crops. The land must be available for use as cropland, pastureland, rangeland, and forest land. In 1982, nearly 2,000 acres of this type of farmland existed.
- d) In some local areas there is concern for certain additional farmlands for the production of food, feed, fiber, forage and oilseed crops, even though these lands are not identified as having national or statewide importance. These lands are to be identified by a local committee made up of concerned agencies called together by the State Department of Conservation. The local committee will review the lands under this category on a five-year basis. In 1982, approximately 17 acres of additional farmland of local importance existed in the county, all of it within the city of Irvine.



### LEGEND

-  Important Farmlands (parcels)
-  Important Farmlands (linear)

Important Farmlands of Orange County (generalized)

Source: State Department of  
Conservation  
(Not A Plan)



MAP  
2-5

### 3) Future Prospects

Urban areas encroach on agricultural lands throughout the county creating pressure to convert farmland to urban uses. The rising costs of irrigation water, agricultural land tax rates, labor costs, and damage from vandalism have increased production costs making it more difficult to have a successful agricultural operation.

The State enacted the Williamson Act in 1965 in response to increasing land taxes which were forcing agricultural land into more intensive uses. The act assesses agricultural land at a lower rate than non-agricultural land. In exchange, landowners enter an agreement with the local jurisdiction to limit the uses on the contracted land for at least 10 years. Presently, 63,000 acres within the county are held in agricultural preserves under Williamson Act provisions. The Irvine Company holds approximately 39,000 acres and the Rancho Mission Viejo Company another 24,000 acres in agricultural preserves. Map 2-6 shows the land areas held in agricultural preserves. Since 1980, nearly 13,000 acres have been removed from agricultural preserves and subsequently planned for urban development.

Growth projections through 2000 indicate the continued urbanization of the county. This urban development will continue to convert agricultural acreage to more intensive land uses. However, objectives and policies presented in Chapter Four: Natural Resources Component identify opportunities for the preservation and maintenance of agricultural acreage. These policies will assist in the preservation of agricultural land in areas where infrastructure has not yet been provided for more intensive activities.

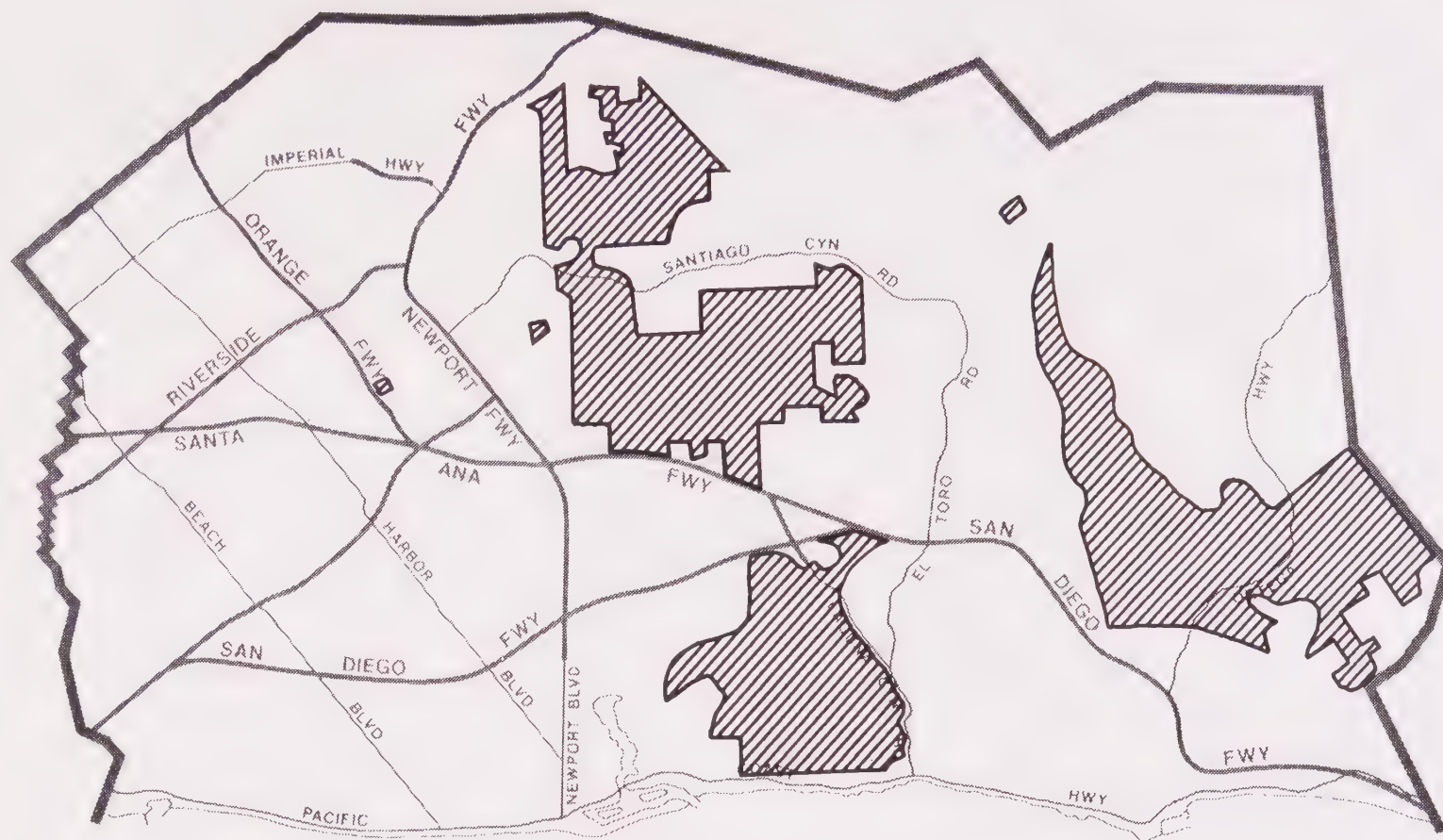
### b. Mineral Resources

#### 1) Introduction

Orange County is blessed with significant amounts of mineral resources. Of particular importance are those mineral resources necessary to meet the county's existing and future development needs, such as construction aggregate.

Construction aggregate resources are the focus of this section of the Resources Element. Although other mineral resources are important to the county's future growth, they are categorized by their ultimate application (e.g., petroleum resources in Chapter Five: Energy Resources Component) in other sections of this element. Much of the information utilized for the assessment of county mineral resources is based on the State of California's Mineral Land Classification/Designation Program, described in greater detail below.





## LEGEND

 Agricultural Preserves  
(Williamson Act)

Orange County Agricultural Preserves (generalized)

Source: Orange County  
(Not A Plan)



MAP  
2-6

2) State Mineral Land Classification/Designation Program

In 1975, the State adopted the Surface Mining and Reclamation Act (SMARA). The primary objectives of SMARA are the assurance of adequate supplies of mineral resources important to California's economy and the reclamation of mined lands. These objectives are implemented through land use planning and regulatory programs administered by local government with the assistance of the State. The Department of Conservation, Division of Mines and Geology, and the State Mining and Geology Board are the agencies responsible for administering this program at the State level.

The act's mineral resource conservation objective is achieved through a mineral inventory and land use planning process termed classification/designation, which jointly involves the Division of Mines and Geology, the State Mining and Geology Board, and local government. Information on the location of important mineral deposits is developed by the Division through a process of mineral land classification. In turn, the classification report is used by the Board in designating deposits that are of economic significance to a region, the state, or the nation. A more detailed discussion of the process is provided in Appendix C.

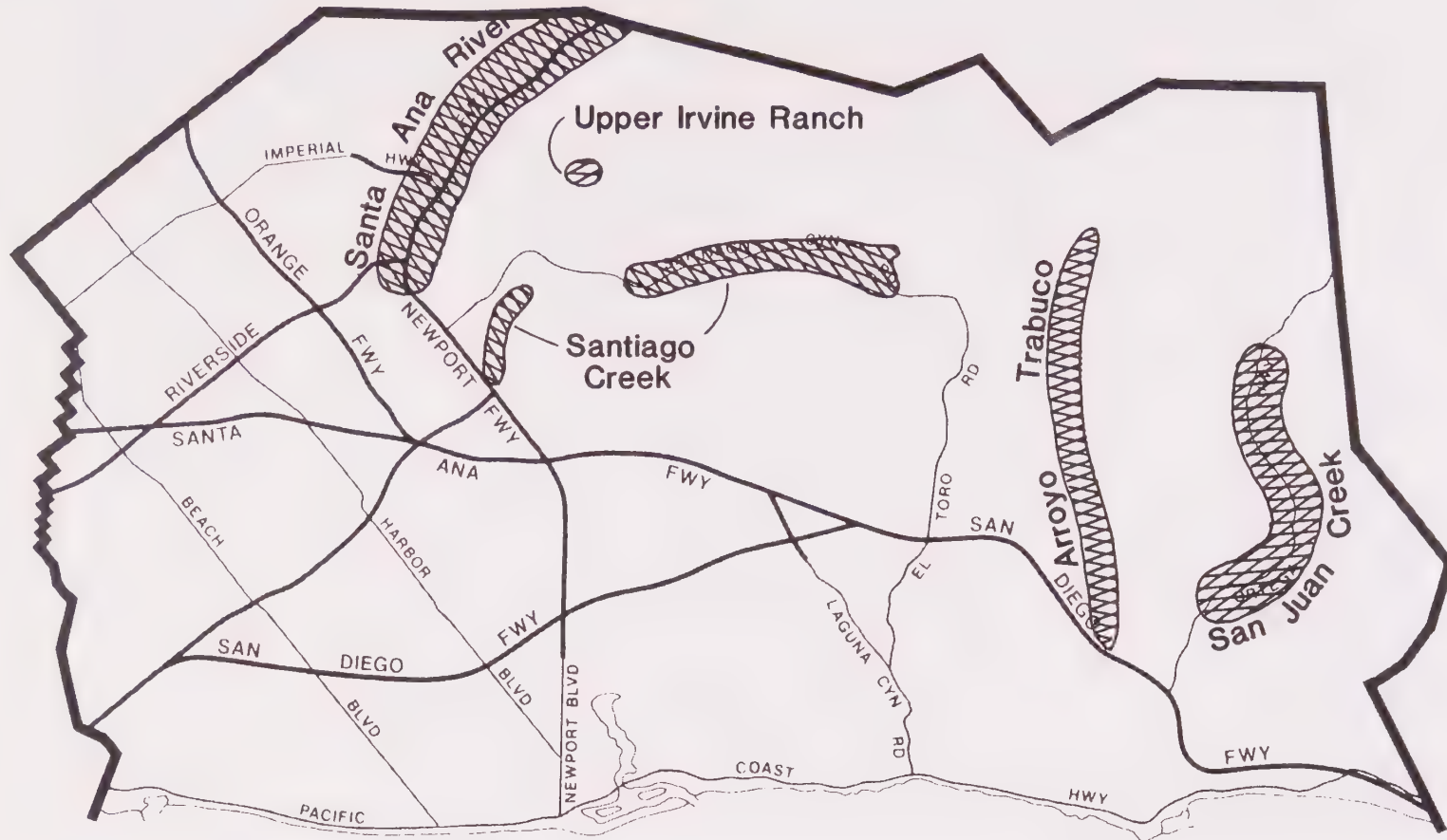
In 1982, the State Mining and Geology Board adopted the Classification Report for Orange County. The designation of mineral lands of regional significance occurred in April of 1983. These two actions provide the basis for the inventory and analysis that follows.

3) Location and Availability of Mineral Resources

The location of the areas classified and designated as deposits containing significant sand and gravel resources are identified in California Division of Mines and Geology Special Report 143, Parts III and IV, for the Orange County Region. (See Appendix C.) In the Orange County Region, resource areas are located in portions of the Santa Ana River, Santiago Creek, San Juan Creek, Arroyo Trabuco, and other areas. (See Map 2-7.)

The depiction of mineral resource areas in this text is not intended to represent a commitment to mineral extraction for these areas. Rather, the following exhibits respond to SMARA's mandate to recognize these mineral resource areas in the General Plan. Any mineral extraction proposals would be reviewed on a project-by-project basis, and require approval of a zone change to the (SG) "Sand and Gravel Extraction" Zoning District and compliance with CEQA.

The specific mineral areas classified and designated are indicated as "resource sectors." Based upon guidelines



LEGEND:



Mineral Resource Areas

Orange County Mineral Resources (generalized)

Source: State Mining &  
Reclamation Act  
(Not A Plan)



MAP  
2-7



developed by the State Mining and Geology Board and the State Geologist, a resource sector is an area judged to contain a significant deposit of construction-quality aggregate that is available, from a general land use perspective, to meet the future needs of the Production-Consumption (P-C) region. The boundaries of each resource sector generally encompass fairly uniform deposits. For example, sector boundaries would be established between that part of a natural deposit formed on an alluvial fan and that part within the confines of an adjacent modern stream channel and its floodplain. The use of these resource sectors provides a reliable method of estimating the tonnage of material available in each mineral deposit.

Table 2-5 describes the existing amount of aggregate resources in the Orange County region. It should be noted that because of geologic and economic factors, the Orange County P-C region includes portions of Riverside County (Temescal Wash and Mayhew-Coldwater Fan). The inclusion of these areas, however, does not significantly affect the demand for mineral resources within the Orange County region.

4) Existing and Projected Mineral Resource Consumption

Using a variety of data, such as regional population projections and historic aggregate production estimates, the State Mining and Geology Board calculated the 50-year demand for aggregate resources for the Orange County region. (See Table 2-6.) In summary, the State Mining and Geology Board forecasts that the Orange County region has a 50-year demand of 850 million tons of aggregate against current reserves (presently mined) of 257 million tons. The utilization of the county's aggregate resources to meet this demand will depend on the availability and quality of these mineral resource areas.

TABLE 2-5

AGGREGATE RESOURCES\* OF THE  
ORANGE COUNTY P-C REGION

<u>Resource Area</u>	<u>Sector</u>	<u>Million Short Tons</u>
Santa Ana River:	A	25.3
	B	66.7
	C	22.4
	D	19.3
	E	9.3
	F	48.0
	G	**
	H	**
	I	**
	Total:	<u>331.1</u>
Lower Santiago Creek:	J	233.6
	K	<u>30.0</u>
	Total:	<u>263.6</u>
Upper Santiago Creek:	L	5.1
	M	34.1
	N	<u>17.0</u>
	Total:	<u>56.2</u>
Temescal Wash:	O	5.1
	P	25.8
	Q	49.0
	R	<u>47.4</u>
	Total:	<u>127.3</u>
Mayhew-Coldwater Fan:	S	<u>330.3</u>
	Total:	<u>330.3</u>
San Juan Creek:	T	<u>149.7</u>
	Total:	<u>149.7</u>
Arroyo Trabuco	U	101.2
	V	<u>29.3</u>
	Total:	<u>130.5</u>
	GRAND TOTAL:	<u>1,388.7</u>

\*Includes the categories of measures (indicated and inferred).

\*\*Cannot be shown due to confidentiality of producer data. However, they are reflected in the sector totals.

Source: California Division of Mines and Geology Special Report 143, 1981.

TABLE 2-6

PROJECTED AGGREGATE CONSUMPTION  
ORANGE COUNTY REGION

<u>Year</u>	<u>Aggregate Consumption</u> <u>(Million Tons)</u>
1980-1985	71
1985-1990	76
1990-1995	80
1995-2000	83
2000-2005	85
2005-2010	87
2010-2015	89
2015-2020	90
2020-2025	92
2025-2030	93

Source: California Division of Mines and Geology  
Special Report 143, 1981.



c. Vegetation and Wildlife Habitats

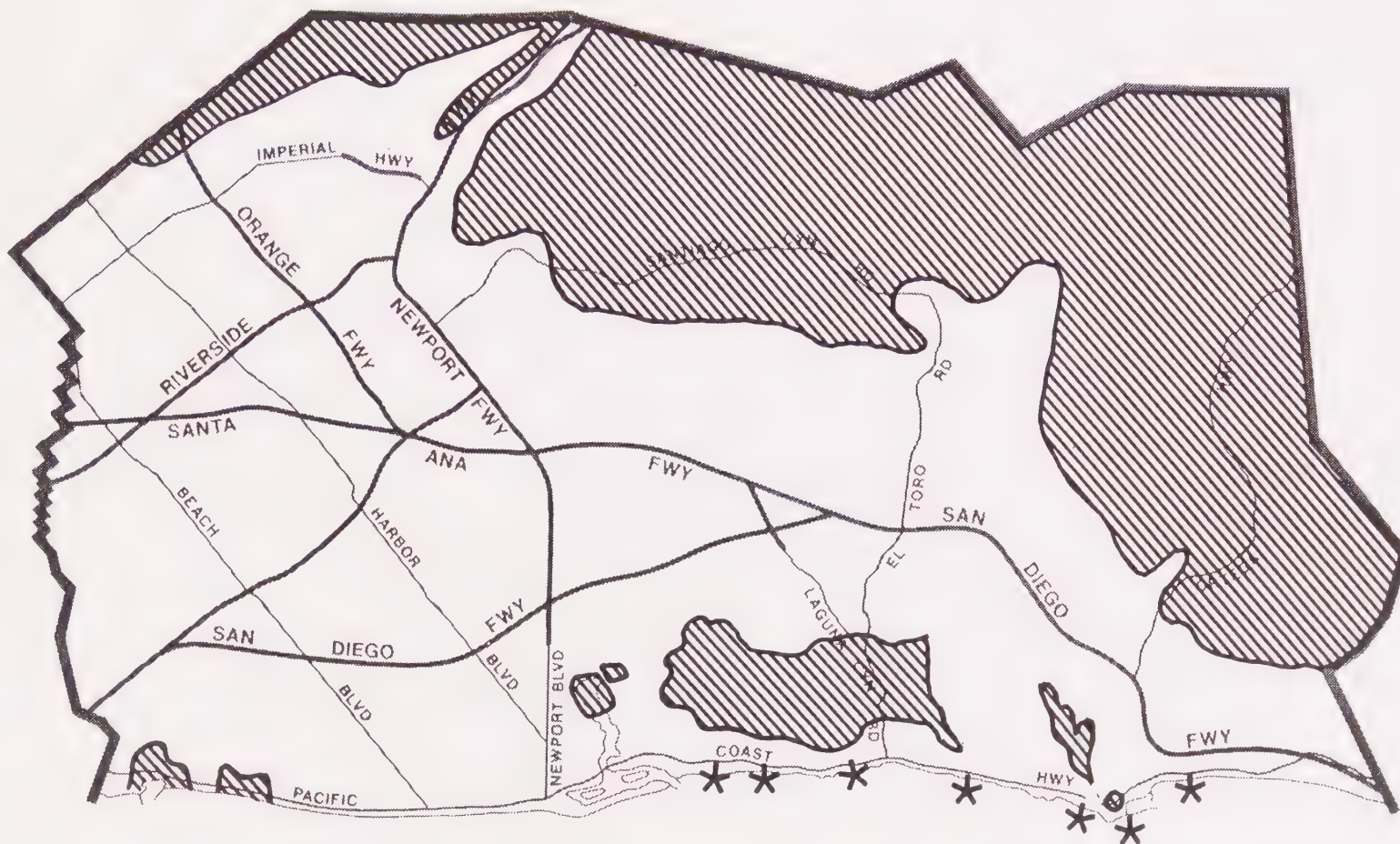
1) Introduction

Wildlife habitat often refers to both vegetation and wildlife. The term relates to the natural environment and to those plant and animal species that inhabit it. Orange County's climate and topography have created an environment that sustains a wide range of plant and animal life. The county rises over 5,000 feet in elevation from the coast to the crest of the Santa Ana Mountains, offering habitat for eight major vegetation communities and wildlife species. Map 2-8 presents a generalized depiction of the county's wildlife habitat areas.



2) Current Conditions

A description of the various vegetation communities found in Orange County follows. The Master Environmental Assessment (MEA), a computerized sensitivity mapping system that supports the County's environmental review process, provided source information for this discussion. Air photography interpretation and existing field research were the primary sources for defining and selecting the eight major vegetation and wildlife habitats presented in the MEA.

- a) Grassland - Characterized by varied topography and climate. Less than 10 percent of this habitat contains trees. Primary vegetation are bunch grasses and annual grass species such as brome, wild oats and barley. Wildlife are generally low in numbers except where grassland contains the added cover of shrubs and/or trees, then smaller mammals such as skunks, raccoons, and coyotes are prevalent.
- b) Coastal Sage Scrub - This habitat may include up to 30 percent oak tree coverage with scrub understory in a mixed environment or be limited solely to low growing brush dominated by sagebrush, black and white sage, prickly pear cactus and various grasses. This habitat is normally found on dry slopes and may provide forage for quail, rabbit and deer as well as a variety of smaller birds and mammals.
- c) Chaparral - This habitat may be chamise dominated or a mixture of less than 30 percent oak tree coverage with scrub understory. This habitat ranges from 1,000 to 5,000 feet elevations and is characterized by chamise, scrub oak, ceanothus and manzanita. Greater vegetation variety is present on north facing slopes. This habitat is very susceptible to fire, which is an essential part of the habitat's life cycle. Old growth provides little wildlife value while new growth makes excellent deer habitat. Many furbearing mammals including bobcat and mountain lion may be found in this habitat.



**LEGEND:**

-  Wildlife Habitat Areas (generalized)
-  Marine Life Refuges & Ecological Reserves

## Wildlife Habitat Areas (generalized)

Source: Orange County  
(Not A Plan)



MAP  
2-8



- d) Oak Savannah - A unique vegetation type, this habitat is similar to the grassland habitat except that a higher percentage ranging from 10 percent to 30 percent is forested. Walnut trees may occur in conjunction with a grass understory.
- e) Southern Oak Woodland/Forest - The differentiation between woodland and forest is based on the presence of oak trees. A woodland contains between 30 percent to 70 percent oak trees with scrub and/or grass understory while a forest contains greater than 70 percent oak trees. The tree canopy is low to medium height, generally open and containing Live Oaks, and California Bay trees. This habitat is most often found along valleys and lower north facing slopes where more abundant moisture is available. This habitat provides a good foraging area for most animal wildlife.
- f) Riparian Woodland/Forest - Riparian habitat is perhaps the most valuable wildlife habitat because of the presence of water. This habitat type is characterized generally by a dense narrow vegetation band along a stream course. Live Oak, Sycamore, Willow and Alder trees dominate low brush.
- g) Conifer Woodland/Forest - This habitat is generally found at higher elevations between 4,000 and 5,000 feet but may be found at elevations as low as 900 feet. Big Cone Spruce, Coulter Pine and Oak dominate a brush understory. An area near the northwestern tip of the Cleveland National Forest contains a stand of Tecate Cypress unique to this habitat type. This vegetation habitat makes good wildlife habitat for nearly all mammals and birds. The majority of this habitat lies within the boundaries of the Cleveland National Forest.
- h) Marsh - Marsh habitat may be either freshwater or saltwater. Freshwater marsh areas are characterized by shallow standing or slow moving water with tule, cattail, rushes, sedges and pond weeds. The habitat generally abounds with wildlife including various waterfowl, ducks, geese and coots. Saltwater marshes occur along tidal areas away from direct surf and wave action. Vegetation types include salt grass, pickle weed and other salt-tolerant plants. These areas have critical waterfowl and waterbird including gulls, terns and plovers with nesting and wintering areas. Further salt marshes are critical to many fish and marine organisms.

The Master Environmental Assessment assists this section and the County's ability to protect wildlife habitat through the sensitivity mapping of rare and endangered species and rare and unique plant life. Seven rare and endangered bird species identified by the State Department of Fish and Game may be found in Orange County. They

include the Light-footed Clapper Rail, California Clapper Rail, California Least Tern, California Brown Pelican, Southern Bald Eagle, American Peregrine Falcon and California Black Rail. Among the rare and unique plant life are the limited kelp beds along the southern coast and rare species of succulents, grasses, brush, cypress and pines.

### 3) Future Prospects

As Orange County continues to develop additional pressure will be placed on the natural environment. Wildlife habitat will most likely shrink in size or be forever lost to urbanization. However, through multi-purpose programs, the environmental review process, and coordination among many jurisdictions, much has been and can be achieved to preserve and protect wildlife habitat in Orange County.

The county shoreline is a special resource for which the County has prepared Local Coastal Programs in response to the requirements of the Coastal Act of 1976. Further, the coastline is marked by several special coastal marine life refuges and ecological reserves. (See Figure 1, the Open Space/Conservation Program Map.) Important among these features are the Bolsa Chica Ecological Reserve, the San Joaquin Marsh and the Upper Newport Bay Ecological Reserve. South from Newport Harbor are seven other marine life refuges.

Inland, wildlife habitat is protected through the continued existence and operation of wildlife sanctuaries such as the Audubon Society's Starr Ranch Wildlife Sanctuary and the Tucker Wildlife Sanctuary, owned and operated by California State University, Fullerton. The Cleveland National Forest also provides an extensive wildlife and vegetation habitat under federal control.

The County's regional parks and open space corridor network of open space corridors shown on the Open Space/Conservation Program Map provide further wildlife protection. The regional parks provide permanent habitat, while the various open space and conservation corridors represent opportunities for permanent wildlife protection and conservation.



#### d. Landforms

##### 1) Introduction

The natural setting of Orange County provides a diverse combination of mountains, hills, flatlands, and shoreline. These landforms and associated major canyons, ridgelines, and coastal areas, all contribute to the diversity of Orange County's environment. Landforms are distinctive natural topographic features of the Orange County area. Major landforms, few in number, must be considered natural as well as aesthetic resources. Land uses which do not use the available land to its best advantage or which alter the topography can detract from the county's appearance, deplete its stock of resources, and contribute to erosion and sedimentation. The following sections identify the county's topographic resources and describe existing efforts to preserve and protect these resources.

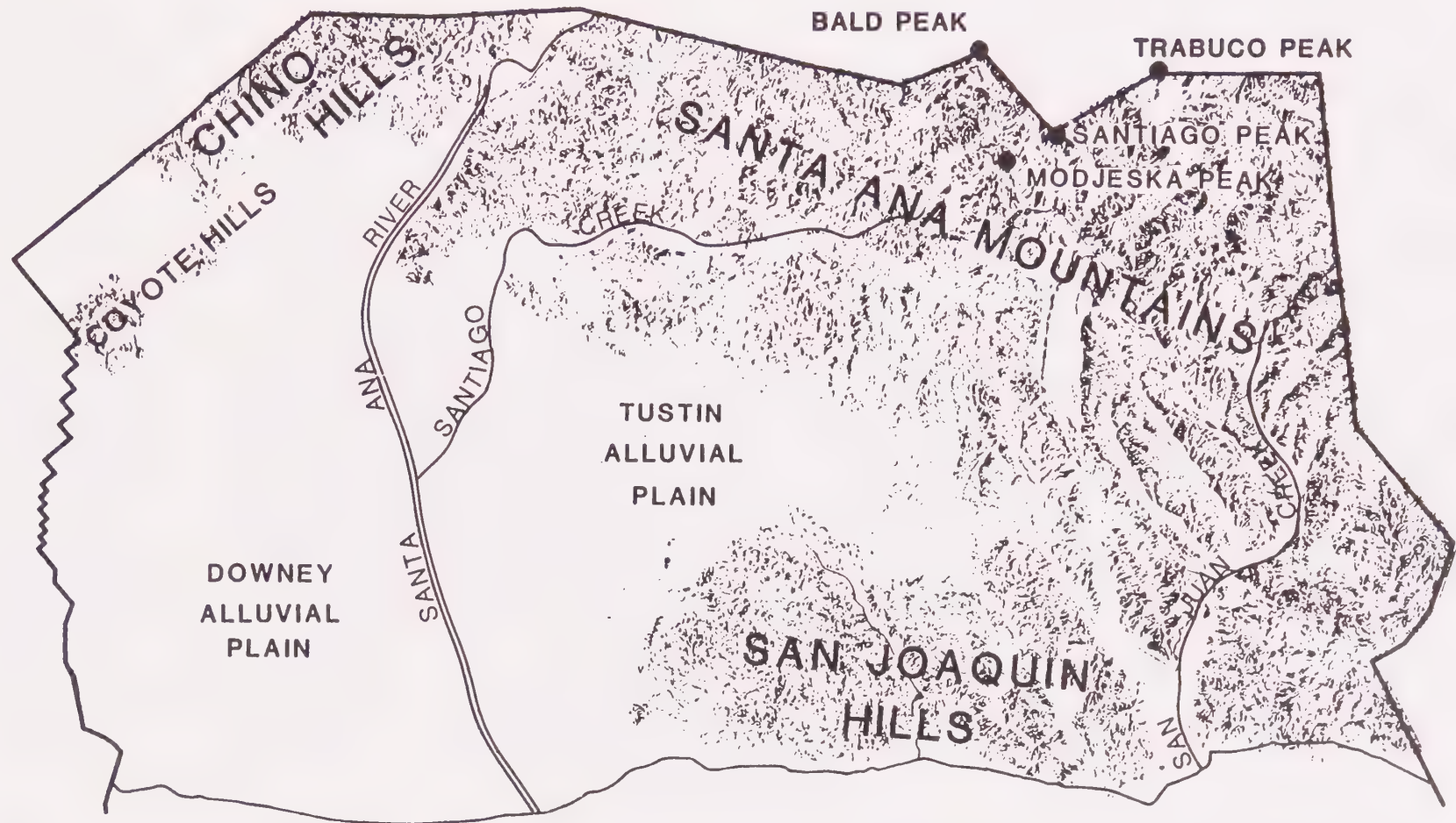
##### 2) Inventory of Landform Resources

Orange County, a somewhat rectangular land mass trending approximately 40 miles along the coast of the Pacific Ocean and extending inland approximately 20 miles, covers 798 square miles. (See Map 2-9.) It is predominantly an alluvial plain, generally under 300 feet in elevation in the west and central section. Several low-lying mesas interrupt the plain along the northern coast. The plain is semi-enclosed by the Santiago Foothills and the Santa Ana Mountains which rise to 5,600 feet on the east, the Puente and Chino Hills in the north, and the San Joaquin Hills to the south. Geologic hazards in the form of faults, landslides, and unstable formations occur frequently throughout the hillside area. These hazards are discussed in greater detail in the Safety Element. Specific sub-areas of the county and their associated landform resources are described below.

##### a) Coastal Features

###### (1) North Coast

North of the Santa Ana River, the shoreline is characterized by broad sandy beaches extending into shallow offshore waters. Behind the coastal strand extensive saltwater marshes once existed. Those at the Santa Ana River mouth and Huntington Beach have been drained. The Bolsa marshlands, at one time with an outlet to the ocean at Warner Avenue now connected to Sunset-Anaheim Bay, have been considerably altered by tidal gates and berms for access to oil wells that are scattered throughout the sloughs. Seven-hundred acres of relatively unaltered marshland (some oil



Orange County Landforms (generalized)

Source: Orange County  
(Not A Plan)



MAP  
2-9

extraction also occurs here) exist as a federal wildlife sanctuary on the Seal Beach Naval Weapons Station. Anaheim Bay, the outlet for the inland saltwater ways, has been developed as a port to service the naval base.

(2) South Coast

South of the Santa Ana River the coastal bluffs of the Newport mesa and uplifted marine terraces extend to the San Diego County line. Beaches vary in width from broad sandy beaches at Newport Beach and from Doheny Beach southward to rocky cobble or headlands and sandy coves along the coast from Laguna Beach to Dana Point. Some are wave cut, forming scenic wave terraces, caves, arches and seawalls; others are set back from the immediate waterline and are of weak, easily erodible materials. Streams draining the interior hills and valleys of the South County area create irregularities in the coastal bluffs as they descend to sea level. San Juan Creek, the largest of these, enters the ocean at Doheny State Beach Park near the Dana Point Marina.

(3) Shoreline

The National Shoreline Study of the U.S. Corps of Engineers indicates that along the 42-mile shoreline there are 33.4 miles of sandy beaches, 0.8 miles of gravel and cobble beach, 6 miles of rocky headlands, and 1.8 miles additional stretches without effective beach. The shoreline has experienced critical erosion for 12.5 miles from Anaheim Bay to Newport Beach Pier requiring periodic sand replenishment to maintain the beaches for recreation. A 2-mile stretch along Capistrano Beach is also classified as critically eroding. Only 1.6 miles of the county coast is classified as non-eroding; the remaining 26.1 miles is classified as non-critically eroding. An additional shoreline feature, the Newport Submarine Canyon, is thought to capture beach sands that would normally redeposit on the coast. This situation heightens the need for beach sand replenishment activities.

(4) Newport Bay

One of the most remarkable features of the coast is Newport Bay. Really two distinct forms, Lower and Upper Newport Bay are also dissimilar in development. Lower Newport Bay, a product of vast quantities of sand deposited by the Santa Ana River in the last century, parallels the coast for about 3 miles. It



contains several large and small islands, is extensively bulkheaded to protect property from tidal fluctuations, and is one of the largest small craft harbors in the world, with anchorage for over 8,000 boats. Upper Newport Bay, a 3-mile expanse, is an incised valley of the San Diego Creek drainage system, predating the pleistocene epoch. The surrounding 40 feet to 100 feet bluffs are well developed with residential neighborhoods. The lower part of the estuary is also developed with marina facilities, an aquatic park and other land uses. Most of it, however, remains in a relatively natural state with three large marshy islands and extensive mudflats. This portion of the bay is part of an ecological reserve at the point where San Diego Creek enters the bay.

b) Coastal Plain, Hills, and Mountains

The low coastal plain, devoid of interesting landforms except for the coastal area and the Santa Ana River, is contrasted by the adjoining hills, mountains, and canyons. "Saddleback", the twin-peaked heights of the Santa Ana Mountains, is the signature landmark of Orange County. Besides the dominant ridgeline of the Santa Ana Mountains, major ridgelines occur in the Lomas de Santiago and the San Joaquin Hills. Numerous canyons and valleys of great beauty occur, including the Santa Ana Canyon, Capistrano Valley, Laguna, Aliso, Wood, Moro, San Juan, Trabuco, Santiago, Modjeska, Silverado, Limestone, and Black Star Canyons, to name just a few. Rock outcroppings as in the Laguna Canyon and geologic formations such as the Sinks and Fremont Canyon add interest to the relatively undeveloped landscape.

c) Watershed, Watercourses, and Floodplains

(1) Watershed

Watershed is defined as the area drained by a given stream. Beginning at the sea outlet and working back upstream, the divides between major watersheds can be derived. Some natural watershed areas in Orange County have been altered to drain elsewhere through the use of flood control projects.

The Santa Ana River watershed is the most extensive in Orange County, running through a three-county area, from its headwaters in the San Bernardino Mountains to its outlet in the Pacific Ocean. Santiago Creek and its tributaries form a major tributary to this watershed. Surprisingly, most of western Orange County is not drained by the Santa Ana

River but by a series of flood control channels which empty into Coyote Creek, the San Gabriel River, or the estuaries and coastal waters. Two other large watershed areas are San Juan Creek with its tributary, Trabuco Creek and San Diego Creek which drains a major portion of central Orange County into Upper Newport Bay. The Aliso Creek watershed, though extending for nine miles, is relatively confined in area. The Laguna Canyon watershed and others along the coast are still smaller.

(2) Watercourses

Dendritic in appearance, county watercourses range from the merest trickling stream to the Santa Ana River. Nearly all are intermittent, flowing mostly in the rainy winter months. Deep in the Cleveland National Forest there are a few springs that run year round; and, there is generally a trickle in the Santa Ana River in summer in its upper reaches.

Many county watercourses have been altered, most notably the Santa Ana River which was given a definite and direct outlet to the sea in 1920 instead of its meandering outlets which have ranged from Anaheim Bay to Lower Newport Bay. Many watercourses have been straightened and fortified with sand levees or concrete channels for flood control purposes. Most of the larger watercourses have been left with unlined stream bottoms to maintain the capacity for water absorption (groundwater recharge) or aesthetic values. Along the upper reaches of many streams, reservoirs and dams have been constructed among the largest Irvine Lake, Villa Park, Carbon Canyon, Fullerton and Brea Dams. Other alterations include the extraction of sand and gravel, which have resulted in large open pits in need of rehabilitation.

(3) Floodplains

It is normal for watercourses to periodically overflow their stream beds and, in Orange County, historical records show flooding over substantially all of low-lying western Orange County by the Santa Ana River. Following the construction of Prado Dam, destructive floods with loss of life and severe damage, such as occurred in 1938, have been prevented. In spite of numerous improvements to the Santa Ana River Channel and a network of flood control facilities, the floodplain of the Santa Ana River remains the same and can expect to be subject to a standard project flood (statistically occurring

approximately every 200 years) that will inundate the cities sited on the floodplain. Other floodplains, less extensive in size and confined by topography, present a potential for causing property damage under flood conditions. These floodplains include Santiago Creek; Modjeska and Silverado Canyons; San Diego Creek; Peters Canyon Wash; Laguna, Aliso, Brea, Tonner and Carbon Canyons; and San Juan, Oso, and Trabuco Creeks.

#### 4) Future Prospects

Landforms, simply by their nature, continually undergo alteration by natural or man-made forces. Though no formal landform management program exists, many programs do provide management, conservation, protection and preservation of the natural environment in the public interest.

##### a) Hillsides

The County's Grading Ordinance strictly regulates hillside grading with regard to soil stability. Cut and fill slopes are generally limited to a ratio of two horizontal to one vertical. It provides for erosion control measures at the time of development.

Through the Flood Control District, drainage requirements are assessed in a number of Master Plans of Local Drainage. Grading and drainage requirements for streets and highways are the responsibility of the County and CalTrans (a State agency).

At the County level, hillsides and other landform (e.g., watercourses) resources are addressed through community and corridor planning activities. These efforts are conducted at a scale appropriate for each resource concern, such as the Aliso Creek Corridor Specific Plan which encompasses the creek's entire watershed.

##### b) Shoreline

Approximately two-thirds of the county shoreline is in public ownership with the prospect of additional miles of beach frontage being placed in public ownership in the near future. The Coastal Act, implemented in Orange County through Local Coastal Programs (LCPs), establishes resource management plans and programs for the county's shoreline. LCPs also regulate private development near and along the shoreline in accordance with Coastal Act objectives. The U.S. Army Corps of Engineers also participates in shoreline facility construction and management efforts and studies beach erosion and other shoreline issues.



c) Watercourses, Floodplains, and Watershed

The Orange County Flood Control District is empowered to control the flood and storm waters of the district and to conserve water for beneficial use. Since its formation in 1927, the powers of the Flood Control District have been enlarged by the State legislature. These additions now empower the district to utilize its works for recreation purposes, to acquire additional lands for environmental enhancement, to test and monitor the quality of water in its work, and to purchase and reclaim water for beneficial use.

Watershed management, the integration of all aspects of surface water and related natural resources such as soils and vegetation with land use, has not been undertaken in the county except by the U.S. Forest Service for the Cleveland National Forest. Watershed management is the prime objective in the multi-purpose planning and management of the forest. For the rest of the county, the complexity of agencies and areas of authority make the approach difficult.

d) Scenic Areas

Orange County, with its varied topography and proximity to the ocean, abounds in scenic areas. From its signature landmark, Saddleback, in the Santa Ana Mountains, to its ocean view of Santa Catalina Island, the county offers a variety of unique visual opportunities. The development of state, regional and local parks to take advantage of these opportunities is continuing. The County also applies sign restriction zoning in most of its planned communities and on its major arterials to assure that scenic views are maintained. The Scenic Highways Component of the Transportation Element also provides preservation measures to assure scenic views. The ocean views from state highways also require special consideration in Local Coastal Programs. However, the preservation of scenic vantage points (visual access) has been limited to a few turnouts, along the Ortega Highway, Chapman Avenue, and Santiago Canyon Road, and parks on the coastal bluffs at San Clemente and Corona Del Mar State Beach Parks, Dana Point and Laguna Beach.

## 2. Energy Resources

### a. Introduction

The importance of energy resources has been made clear in recent years as a result of increases in the price of energy, the state and national interests in reducing dependence on foreign energy sources, and increasing concern with the environmental impacts associated with traditional energy sources such as coal. In response to these factors, energy conservation through both reductions in energy use and the development of energy efficient technology has emerged as an important substitute for energy resource supplies. In this section, an overview of the county's energy resource supply and consumption trends is provided through: 1) an identification of county energy resources; 2) a description of existing and future countywide energy consumption characteristics; and 3) a description of energy consumption by sector (e.g., residential). This background information provides the basis for the goals, objectives, policies and programs contained in Chapter Five: Energy Resources Component.

### b. Identification of County Energy Resources

Although Orange County does not have sufficient energy resources to meet its own needs, the county does have significant existing and potential energy resources within its boundaries. The county's energy resources, illustrated in Map 2-10, are divided into two major categories: petroleum resources and renewable resources. Economic deposits of other energy-producing minerals such as uranium and coal have not been identified in Orange County.

#### 1) Petroleum Resources

Orange County's petroleum resources are in the form of oil and natural gas deposits. These two non-renewable resources are formed through a slow geologic process and are found at various sites throughout Orange County. The primary petroleum resource areas of the county are Huntington Beach and the Brea/La Habra foothill regions. (See Map 2-10.)

Oil and gas in Orange County are associated with a number of sub-surface geologic structures in the Los Angeles sedimentary basin. The on-shore fields are aligned with the Newport-Inglewood and Whittier fault zones which have facilitated the entrapment of petroleum resources.

Oil extraction, which began in 1897 in Orange County, has been declining on the whole over the past decade due to depletion of the fields. A secondary recovery phase is underway in most fields where production is stimulated by a water flooding program. This secondary phase is expected to last 10 years, during which annual production will be similar to that of the

**LEGEND**

**Biomass Resources<sup>(1)</sup>**  
(Methane from existing  
& closed landfills)

- ## Petroleum Resource Areas



Geothermal Resource Areas (potential)



(1) Biomass resource potential exists in agricultural areas (see Map 2-5)



initial phase. At the end of that phase, when production is no longer economically feasible, it has been estimated that as much as 50 percent of the resource may still be unrecovered. Within the next 10 years, technological advances may make additional recovery phases economically feasible.

There are presently four major categories of petroleum operations in Orange County. They are:

- o On-shore - Conventional: vertical wells, distributed evenly about the field, each well equipped with certain treatment facilities, storage or shipment lines, pumping units.
- o On-shore - Directional: wells grouped into drill sites for economy, physical and land use restrictions, engineering considerations; equipment concentrated in relatively small areas leaving surface available for other use; more expensive to drill than vertical hole; limitations to degree of deflection but may extend a mile horizontally from surface site.
- o Off-shore - Man-made Island: fill islands in shallow water (up to 45 feet) with directionally drilled wells, connected to shore with submarine production and supply lines, mobile drilling rigs.
- o Off-shore - Fixed Platform: in relatively shallow water (up to 300 feet) for economic reasons, directionally drilled wells, production and maintenance facilities on platform, submarine production and supply lines.

Petroleum resource development is regulated by numerous federal, state, and local regulations. In general, federal agencies are concerned with petroleum operations on federal lands, the State of California is concerned with coastal areas and environmental protection (e.g., water quality), and the County enforces the local Oil and Zoning Codes which regulate oil and gas production operations. However, since federal and state laws are constantly evolving in the area of petroleum resources, a detailed discussion of appropriate statutes and regulations regarding petroleum resources would quickly become outdated. Therefore, such laws and regulations are monitored and implemented by County staff on an ongoing basis (rather than defined within this text).

## 2) Renewable Resources

This category of energy resources includes solar, wind, biomass and geothermal resources. At the present time, these resources do not comprise a significant portion of the county's energy supply. These energy resources, however, have considerable potential and can be developed as both



substitutes for oil, natural gas, and other energy supplies used for electricity generation, and to reduce consumption of these supplies.

Solar Energy: Solar radiation in the form of sunlight can be utilized for energy production in two ways. The first method, active solar systems, involves the use of mechanical devices to convert solar energy to heat or electricity. The second, passive solar systems, utilizes natural heating and cooling from the sun through proper orientation and building design. For the purposes of the following discussion, it is assumed that the amount and quality of solar radiation received by the county will be adequate for the use of solar technologies.

#### Active Solar Energy Systems:

##### (a) Solar Water Heating

Solar water heating systems involve the use of solar collectors and storage tanks to heat domestic water. Solar water heating systems can provide 60 to 80 percent of the hot water demands for a household and are generally supplemented with a natural gas or electric system. Water heating is one of the more common uses of solar energy.

##### (b) Solar Space Heating

Solar space heating is most commonly used in new residential dwelling units, although some retrofitting of existing structures has occurred. Generally, space heating systems utilize solar collectors to collect heat which is then stored in a rockbed. Heated air is then drawn into the existing gas furnace, as necessary.

##### (c) Solar Swimming Pool Heaters

Solar heating systems are utilized for pool heating either singly or in conjunction with natural gas pool heaters. The technology is very similar to solar water heating except that, because of the lower heat requirements, simpler and, consequently, less expensive solar collectors are utilized.

##### (d) Photovoltaic Systems

Photovoltaic (PV) solar systems convert sunlight to electric energy through the use of a solar cell array. PV systems can be utilized for either small scale applications (residential structure) or for centralized power generation. The primary emphasis at this time, however, is to continue research and development programs which

are intended to make PV costs competitive with other energy supplies.

#### Passive Solar Energy Systems:

##### (a) Swimming Pool Covers

A plastic or fiberglass cover placed over a swimming pool surface can reduce heat loss. Studies have shown that pool covers can result in a 97 percent reduction in natural gas use when utilized in conjunction with solar pool heaters.

##### (b) Passive Heating and Cooling

Passive space heating systems are generally comprised of two features. First, southern exposure and glazing of the structure is provided. Second, storage devices, such as rock beds, are utilized to store heat.

Passive cooling is generally the result of proper shading strategies. Roof overhangs and insulated shutters and drapes protect a structure from excess heat absorption while vents provide natural cooling through day and night breezes.

Wind Energy: The State Energy Commission predicts that wind systems will produce 10 percent of the energy required for electric generation by the year 2000. Like solar energy, wind energy has been used for centuries to provide for many human needs. For electricity generation, the wind's energy drives a rotor which then powers an electric generator. Rotors are generally constructed of two or three blades mounted on a tower.

Geothermal Resources: Geothermal fuels can replace conventional fuels in many space heating and cooling and agricultural applications as a direct use energy resource. Geothermal resources can also produce electricity through the use of geothermal steam to run turbines. Because of this versatility, geothermal resources can play an important role in meeting future energy demands.

California has numerous sites which have been identified as geothermal resource areas. In Orange County, the only potential geothermal sites are in Huntington Beach and at the hot springs in Trabuco Canyon. Presently, none of these areas are being utilized for geothermal extraction activities.

Biomass Resources: Biomass resources refers to organic materials, either wastes, residues, or specific crops, which can be converted to an energy resource. Biomass can be converted to an energy fuel to replace conventional sources or

directly used in combustion processes. Several local sources of biomass exist in Orange County. These include:

- o Solid waste
- o Existing landfills
- o Certain high yield agricultural crops
- o Agricultural and wood residues

These sources can produce gaseous fuel, heat/steam process electricity, and liquid fuels through either a microbiological or thermochemical conversion process. As stated above a variety of energy fuels can be provided from biomass. The specific products are described below:

- o Methane gas
- o Ethanol and methanol (alcohol fuels)
- o Steam and high temperature heat through direct combustion
- o Oil and natural gas through pyrolysis
- o Synthetic fuels

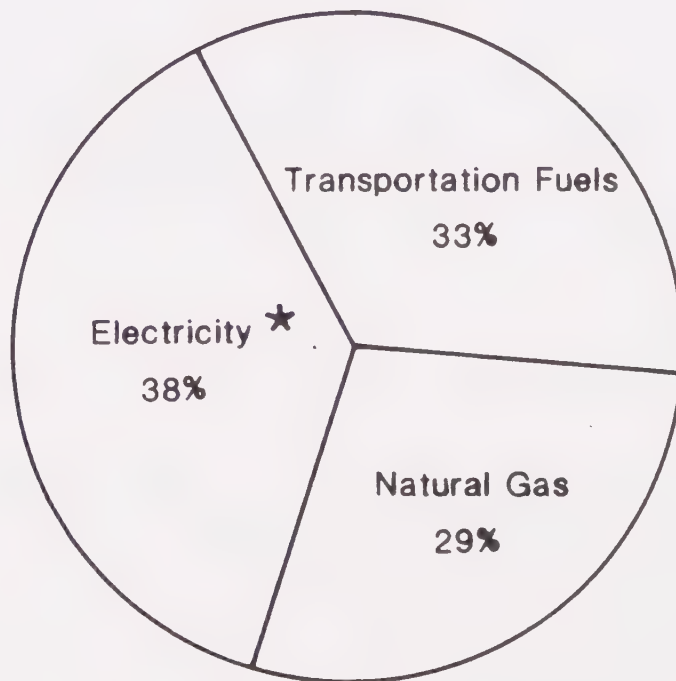
c. Existing and Projected Consumption Patterns

The following section describes the general consumption patterns for the three major categories of energy supplies in Orange County: 1) electricity, 2) natural gas, and 3) transportation fuels. Both existing patterns and projected consumption estimates are provided for each energy supply category. A general breakdown of countywide energy consumption in these three areas is provided in Chart 2-2.

1) Electricity

The Southern California Edison Company (SCE) provides electricity to most of Orange County, with San Diego Gas and Electric (SDG&E) providing electric service to about 6 percent of the households in the southern portion of the county (Capistrano Valley/San Clemente Foothill region).

Utilities generally provide supply data at the service area level since electrical supply is delivered without regard to jurisdictional boundaries (e.g., County of Orange). Therefore, some interpolation is necessary to disaggregate supply data to the county level. An analysis of utility data indicated that Orange County's existing (1980) electric capacity was almost 18,000 gigawatt-hours per year. This capacity is almost 50 percent higher than the county's present



\* The electricity category includes the consumption and loss of energy resources by the conversion and transmission process.



electric demand (see Chart 2-3) but allows for peak demand periods and maintenance and repair of generation facilities. Future demand is projected to be 21,000 gigawatt-hours per year, which will require an expansion in the present electric capacity to meet the projected demand.

In contrast to other county energy supplies such as natural gas, electricity is produced through the consumption of other primary resources. (See Chart 2-4.) Since almost two-thirds of the energy input is lost in the transmission or production process, electricity is also a major consumer of energy in addition to providing energy. This is an important consideration in examining future supply sources for electricity generation.

## 2) Natural Gas

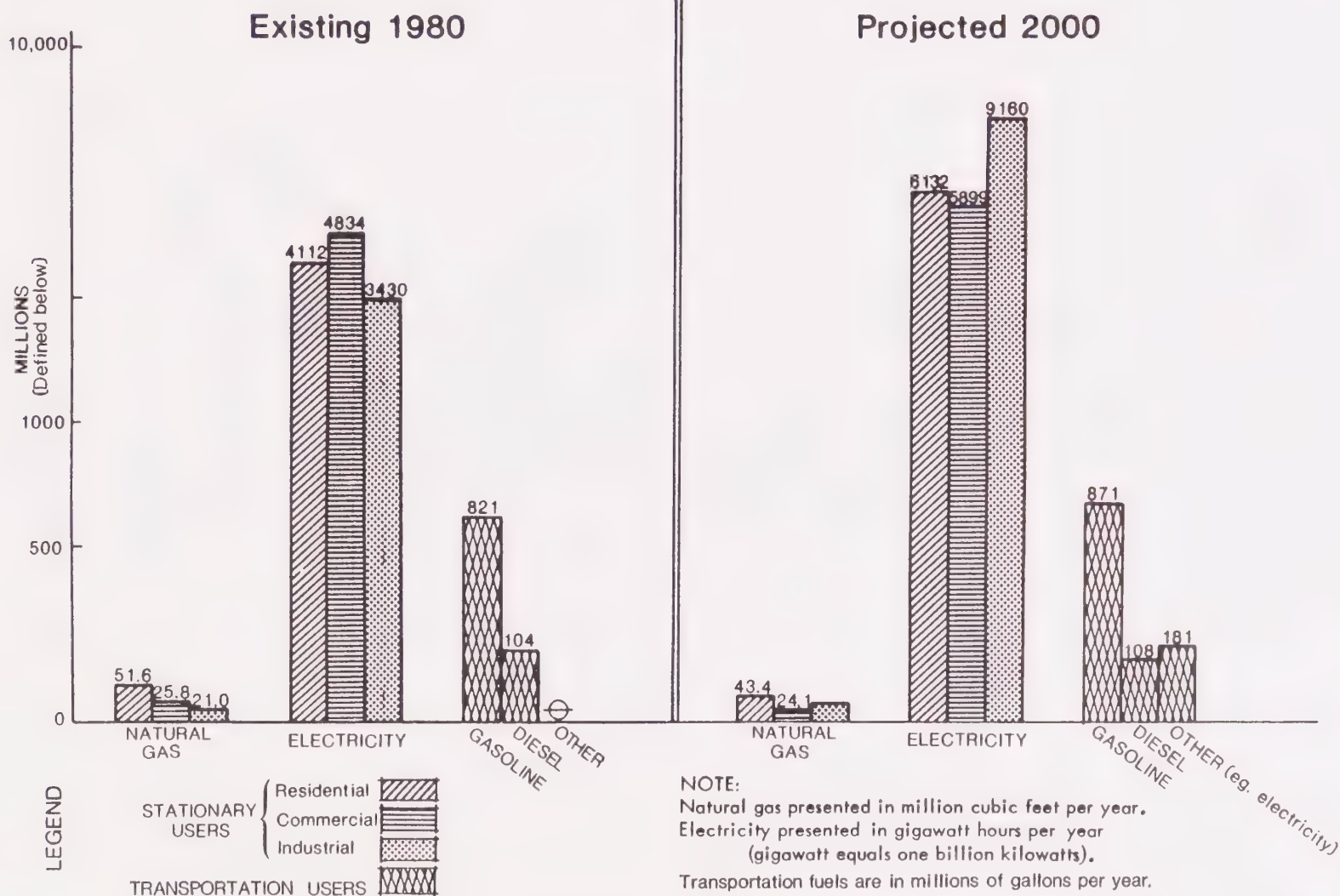
The only supplier of natural gas in Orange County is the Southern California Gas Company (SCG). SCG currently receives over 90 percent of its supply from out-of-state sources. (See Chart 2-5.) Currently supply is estimated to be approximately 99 million cubic feet (mmcf) per year, which is approximately equal to existing natural gas demand. The balanced supply and demand is due to the fact that, at present, natural gas demand dictates the amount of imported natural gas supply.

Existing supply considerations are complicated by the fact that natural gas is distributed according to priorities established by the State Public Utilities Commission. The highest priority is residential use with utility steam generating plants being the lowest priority. Thus, in many ways the county's natural gas supply is a function of pricing and distribution regulations and not production rates. However, the diminishing supply of natural gas in the state is an important consideration in examining future demand. These existing and future demands are described in Chart 2-3.

## 3) Transportation Fuels

Petroleum (crude oil) is the primary source for Orange County's transportation fuel supply. Transportation fuels are generally refined in the Southern California area. Of each barrel of crude oil refined, 43 percent is converted to gasoline while 5 percent is used for diesel fuel. The remainder is used for commercial and industrial petroleum products.

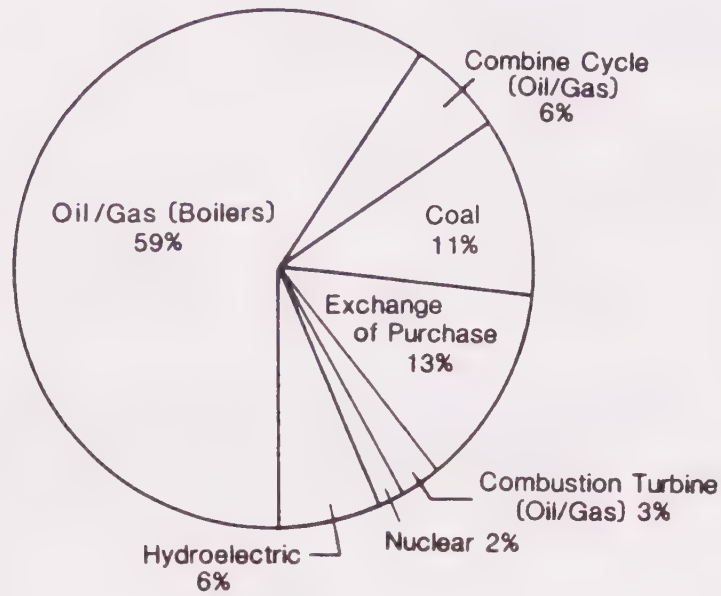
Southern California refineries process about one million barrels of crude oil each day (SCAG, 1982). The major sources of the local supply are Alaska and California (including Orange County) oil fields. Although oil reserves in both of these states provide an adequate supply for Orange County's needs, the existing transportation fuel supply must be considered in the



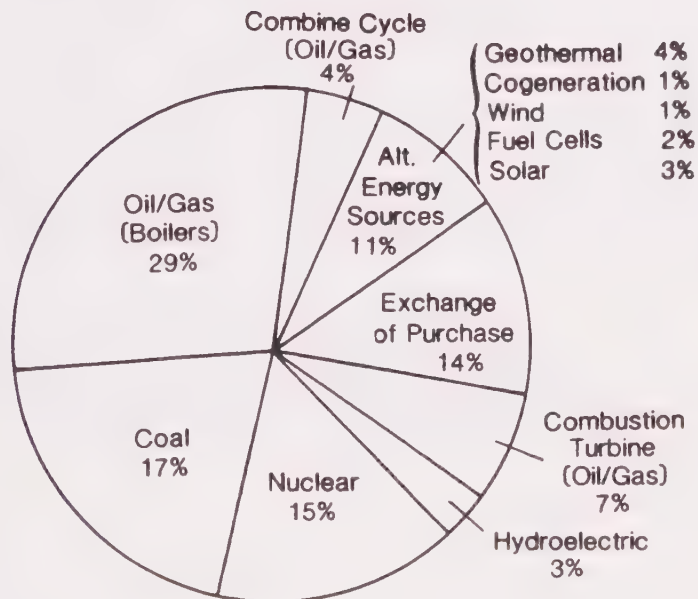
## Energy Demand in Orange County

Source: Orange County (1982)  
 Orange County Transportation  
 Commission (1980)

CHART  
 2-3



1980  
(Existing)



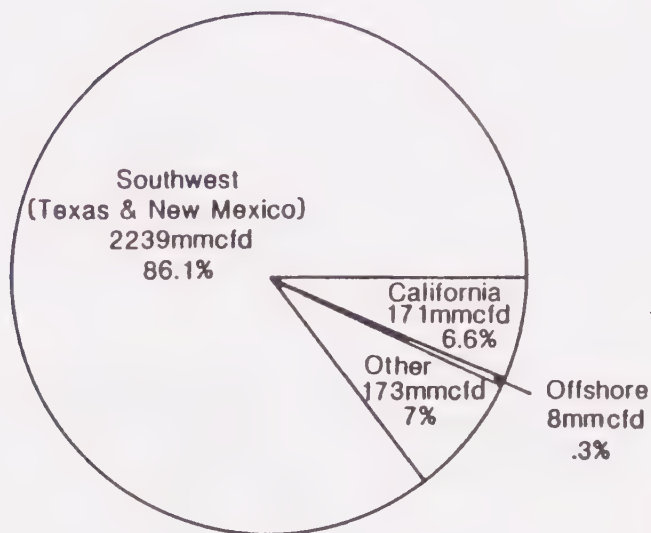
2000  
(Future)

## Electric Power Generation By Energy Source/Technology

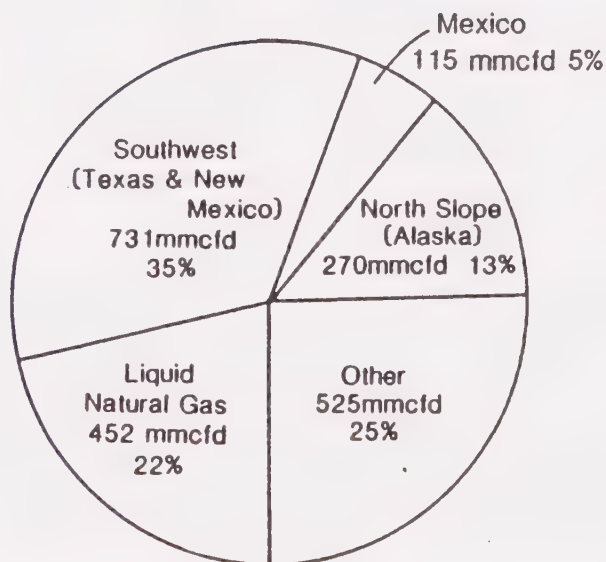
Source: California Energy Commission  
(1980)

CHART  
2-4





**1980**  
(Existing)



**2000**  
(Projected)

NOTE: mmcf/d= million-million cubic feet per day.

**Natural Gas Supplies  
Available to Southern California**

Source: Southern California Gas  
Company (1980)

**CHART  
2-5**

context of international, federal, and state supply conditions. Any disruption of international or domestic oil supplies would eventually affect the availability of oil to California and, subsequently, Orange County.

d. Energy Resource Utilization by Sector

A discussion of energy utilization by each sector of Orange County's economy is provided below. A description of each sector as a component of countywide utilization trends is contained in Chart 2-6. This figure and the following discussion provide the context for analyzing specific energy consumption patterns and evaluating conservation opportunities within each sector.

1) Residential Sector

The residential sector comprises almost 90 percent of all electrical customers in the county but consumes only 33 percent of the total county energy demand. Residential electrical consumption has increased 4 percent annually since 1974 despite increased energy conservation efforts.

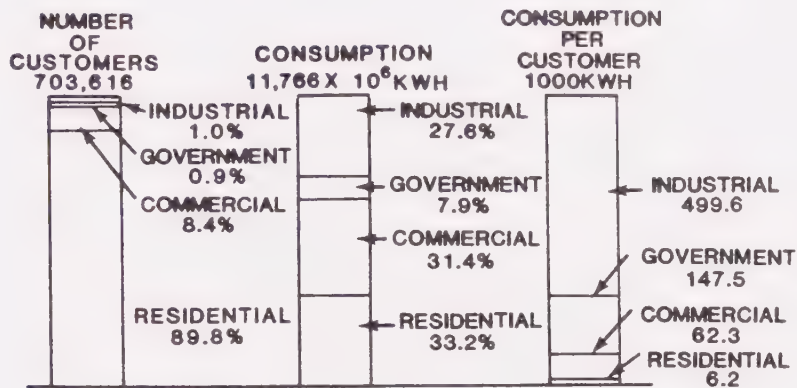
Like electrical consumption patterns, over 90 percent of all natural gas customers are in the residential sector. In contrast to electricity consumption, however, the residential sector accounted for over half of the total natural gas consumption for Orange County in 1980. Most of the residential natural gas demand is for space heating, although water heating and cooking are also important. Chart 2-7 provides a breakdown of residential sector end-use consumption for both Orange County and California.

2) Commercial Sector

The commercial sector includes retail activities, office/professional uses, government activities, and agricultural production. Although the commercial sector comprises only 8 percent of all electrical customers in the county, it consumes over 30 percent of the total electrical demand. Commercial sector electrical demand has increased at an average rate of 4.6 percent annually since 1973. Most of the electrical use in the commercial sector is devoted to office lighting and cooling.

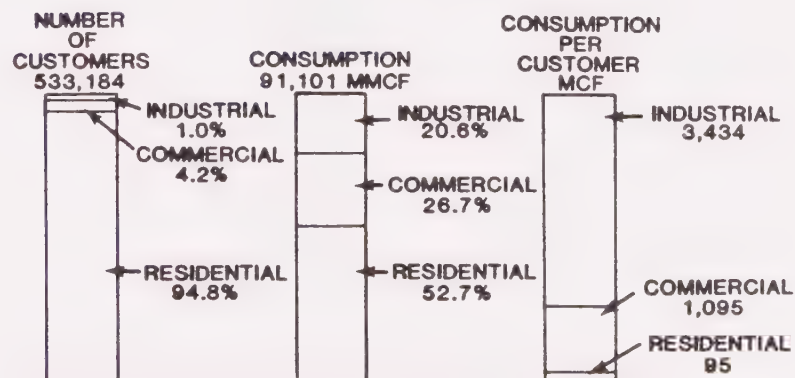
The commercial sector comprises less than 5 percent of the natural gas customers in Orange County. This sector, however, accounts for over 25 percent of existing natural gas consumption with total consumption increasing at an annual average rate of 7 percent since 1971. As with the residential sector, space heating is the largest natural gas end-use for the commercial sector.

## ELECTRICITY USE



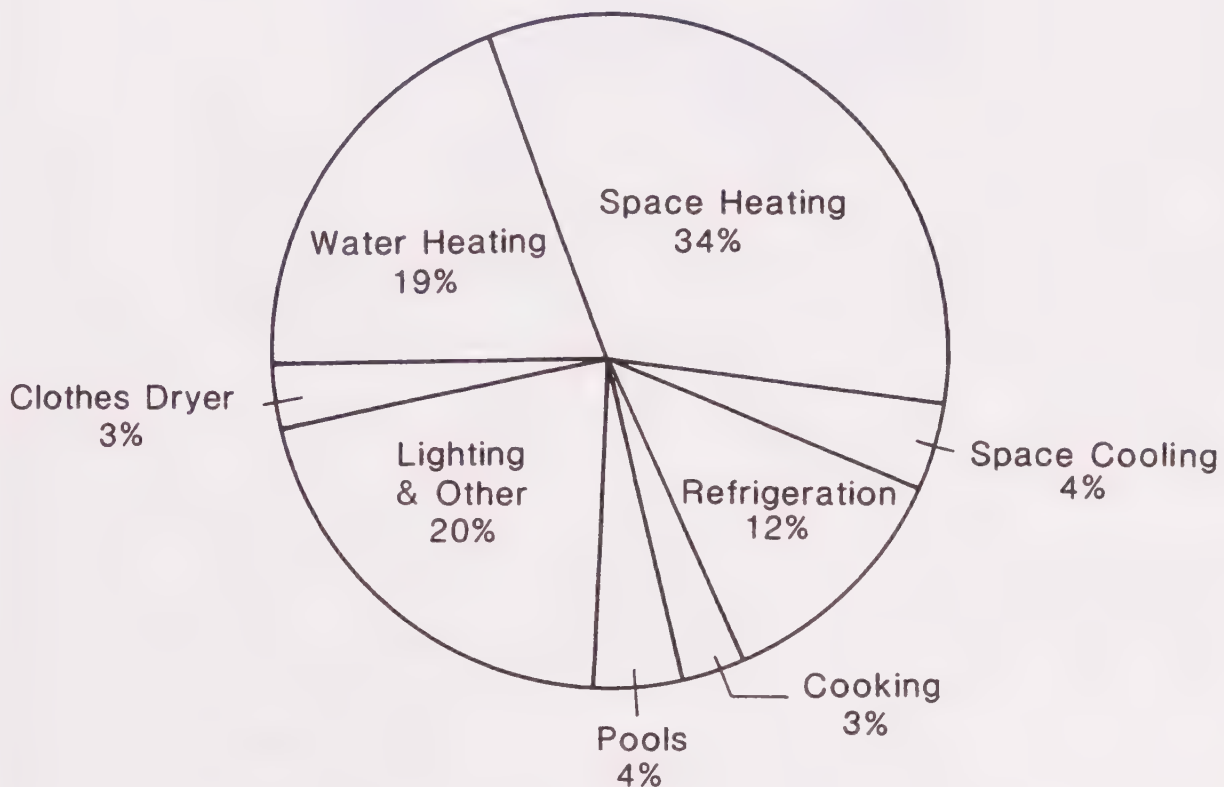
NOTE: KWH= Kilowatts per hour or 1000 watts.

## NATURAL GAS USE



NOTE: MCF= million cubic feet.  
 MMCF= million-million cubic feet.





3) Industrial Sector

The industrial sector comprises only about 1 percent of electrical customers in the county. In contrast, the industrial sector consumes almost 28 percent of all the electricity used within the county. Consequently, the industrial sector has the highest electrical demand per customer of the three stationary sectors (which excludes transportation).

This sector comprises only 0.2 percent of all natural gas customers yet consumes 20 percent of the total amount used. Industrial sector natural gas consumption has been declining at a rate of 9.3 percent annually since 1971, however.

4) Transportation Sector

The two major users of transportation fuels in Orange County are private automobiles and commercial vehicles. Gasoline consumption has increased at a 3.8 percent annual rate since 1975 as a result of the increase of vehicle miles travelled (VMT) within the county. While it is still a relatively small segment of the transportation sector demand, diesel fuel consumption has increased at an annual rate of 11.4 percent since 1972.

### 3. Water Resources

#### a. Introduction

Orange County's economy and general life-style are dependent upon an adequate and dependable supply of water. Water is increasingly used for a variety of residential, commercial, agricultural, and industrial purposes, in addition to its value for recreational uses and aesthetic enjoyment. The increasing demand, coupled with limited availability and declining water quality, has made the planning and management of water resources indispensable. The interrelationship of water resource supply and use is complicated by natural forces as well as the multitude of agencies that have been formed to develop and protect this essential resource. In this component the interrelationship of water supply and use is presented through: Section b) an identification of county water resources, both local and imported; Section c) water management activities; and d) a description of countywide water use characteristics. These topics provide an overall view of the complex water resource needs of Orange County.

#### b. Identification of County Water Resources

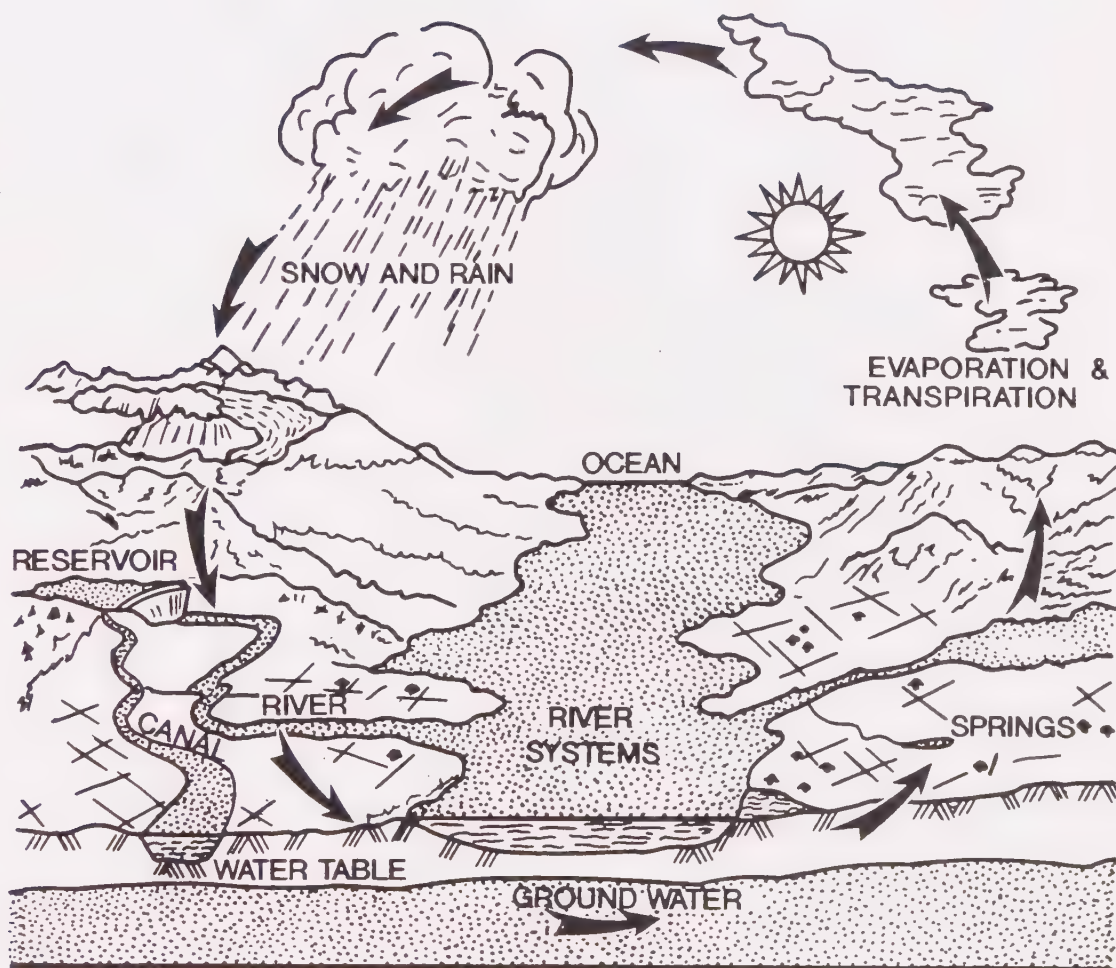
Prior to the turn of the century, precipitation, the Santa Ana River and shallow supplementary wells were the principal sources of water for the County. The extensive tapping of groundwater resources in order to support irrigated agriculture and population growth permitted saltwater intrusion on coastal areas which prompted the need for imported water supplies. The County is now dependent on a water resource network comprised of both local and imported supplies. The general relationship between precipitation, local and imported water sources is illustrated in Chart 2-8 and described more fully below.

Throughout this section the term acre-feet of water will be used as a unit of measurement for water resources. An acre-foot of water, abbreviated AF, is that quantity of water that would cover an acre of land to the depth of one foot. Table 2-7 provides additional comparative water volume data.

TABLE 2-7

1 acre-foot	= 43,560 cubic feet or 325,900 gallons
1 million gallons	= 3.07 acre-feet
1 million gallons per day (MGD)	= 1,120 acre-feet per year





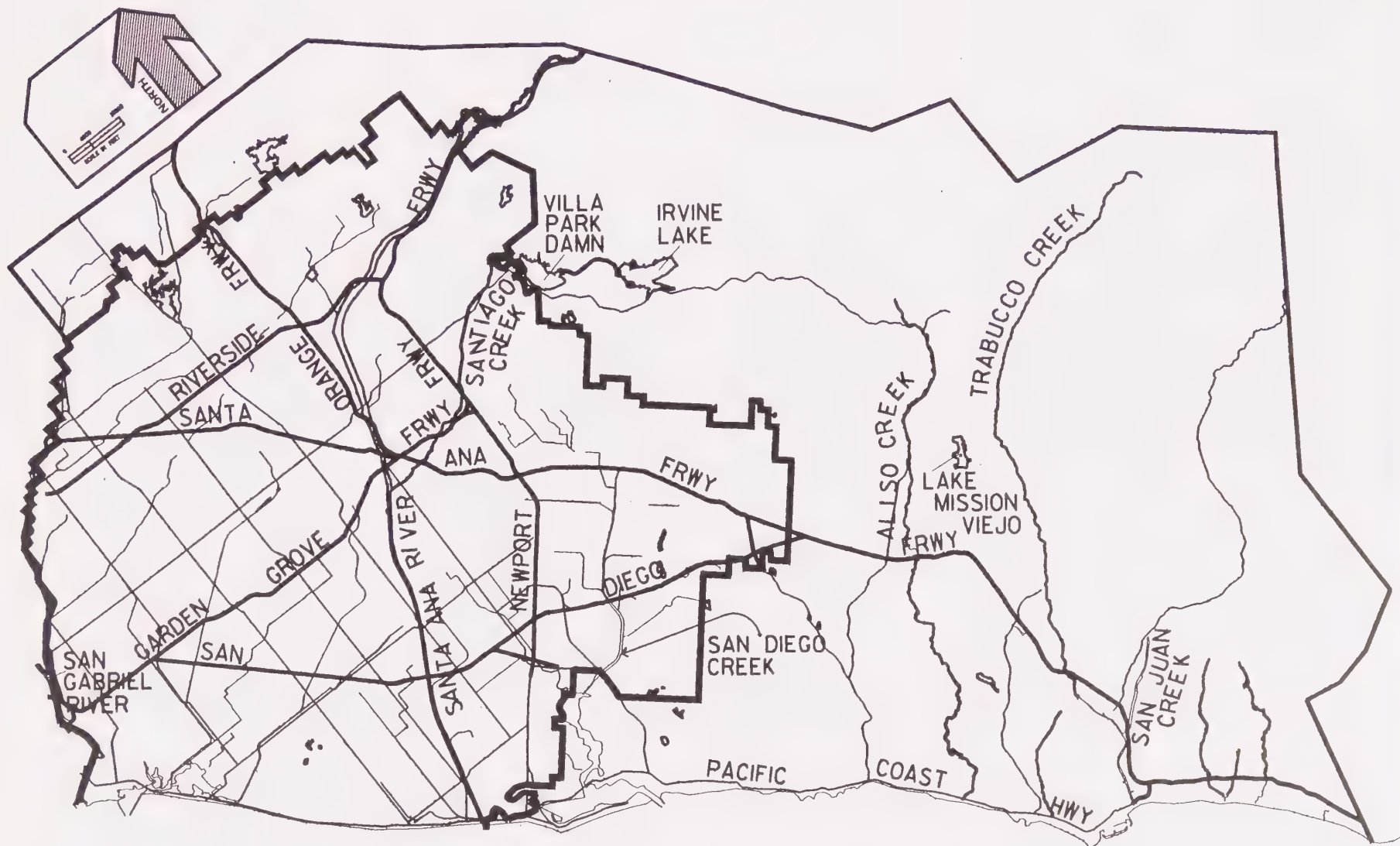
## 1) Local Resources

A large portion of northern Orange County is underlain with a groundwater basin (or aquifer) which is primarily supplied by the Santa Ana River watershed as depicted in Map 2-11. The groundwater basin acts as a huge water storage facility. When water is available, it is percolated or directly injected into the aquifer. When water is needed, it is pumped out and piped to various destinations. This basin is divided into the Santa Ana Forebay area and the Coastal Plain Pressure Area. The forebay area of this groundwater basin is overlain with relatively porous soils which allow water to percolate into the groundwater table. The Coastal Plain Pressure Area is noted for a clay layer over its seaward half which is impervious to percolation. The Santa Ana River channel between Katella Avenue and Imperial Highway is typically a wide, sandy bed. This reach is the principal groundwater recharge area for the Basin.

Other Orange County streams provide some additional water supply. The Santiago Creek, San Diego Creek, San Juan Creek and Aliso Creek drainage systems have permeability and percolation rates that vary widely, although they are significantly smaller in scale than the basin underlying the Santa Ana River.

Management of a groundwater basin is a complex and expensive task. The Orange County Water District (OCWD) is responsible for the management of the Orange County Groundwater Basin. By capturing natural Santa Ana River flows, intermittent storm run-off, reclaiming treated wastewater and purchasing imported water, OCWD protects the quantity and quality of the natural underground reserves. A brief chronology of OCWD activities follows:

- ° In 1933, the California State Legislature established the OCWD and provided the authority to protect the groundwater in the Basin.
- ° Until 1940, the Basin and the local streams that supply it constituted the sole source of OCWD water. With Orange County water use increasing and upstream jurisdictions diverting larger volumes, OCWD began importing Colorado River water in 1940. These purchases were made through the facilities of the Metropolitan Water District of Southern California (MWD).
- ° In 1949, OCWD began percolating the imported water underground to recharge the groundwater basin.
- ° In 1954 Orange County Water District began to levy pump taxes and assessments in an attempt to slow the depletion of groundwater resources. The assessments also provided the necessary funds for purchasing water to recharge the Basin.



# ORANGE COUNTY GROUNDWATER BASIN

SOURCE:  
PLANNING  
GRAPHICS

MAP  
2-11



- ° A 1969 judicial decision awarded OCWD a guaranteed annual flow of 42,000 acre-feet in the Santa Ana River below Prado Dam. In 1974 the first deliveries of State Project water reached Prado Dam for the purposes of replenishing groundwater reserves.

To maintain local water resources, OCWD utilizes spreading basins and percolation ponds to recharge the Basin. This includes an extensive groundwater replenishment system covering a six mile reach along the Santa Ana River. In addition, the Santiago Creek Replenishment Project is another OCWD effort capable of recharging an additional 25,000 AF into the Basin. The project consists of a pump station and pipeline to transfer water from Burris Pit on the Santa Ana River to the Bond and Blue Diamond pits along Santiago Creek (a tributary to the Santa Ana River).

With respect to other groundwater basin development opportunities, the San Juan Creek depicted in Map 2-11 is also a valuable asset to local water resources. The natural safe yield of its groundwater basin is about 15,000 AF per year with the potential for additional groundwater storage. Programs for additional utilization of the San Juan Creek Basin are being implemented and developed by the San Juan Basin Authority, a joint powers agency created in 1971 to manage the groundwater basin.

It is important to note that local water resources are made up of a combination of groundwater and imported supplies. Local groundwater producers and pumpers are allowed to pump up to 70% of their domestic demands from the ground without potential overdraft to the Orange County Basin. Their remaining demands must be met by imported supplies, a combination of Colorado River water and water from northern California. Dependence on imported supplies can be reduced however, by augmenting local water resources with cost-effective local development projects such as water reclamation. The use of reclaimed water on large greenbelt areas (parks, golf courses, cemeteries, street medians, etc.) reduces the need for limited and costly imported potable supplies.

Water conservation programs will play an increasing role in the future of Orange County. Through improvements in landscaping technology combined with new in-home low-flow products and a greater public awareness of water as a scarce resource, the quality of life in the County can be maintained while the per capita water demand can be reduced.

The continuing development of these local resources will contribute to the adequacy and dependability of Orange County's water supply.



## 2) Imported Resources

Viewed as a unit, Orange County is heavily dependent upon imported water. Just 44 percent of the county's Municipal and Industrial (M&I) demand is currently met by local resources. This fits into a pattern of steadily increasing reliance upon imported water. For this reason, the county's supplies will, in the foreseeable future, continue to be tied to those of the Metropolitan Water District of Southern California (MWD), the master wholesaling water agency for imported water supplies. MWD supplies the imported water demands of most of its member agencies from two sources: the Colorado River and State Water Project. The City of Los Angeles, an MWD member agency, partially supplies itself with imported water from its own system, the Los Angeles Aqueduct (Owens-Mono System). The need for a dependable water supply as well as the two primary MWD sources are described below and depicted in Chart 2-9.

### a) Dependable Water Supply Status

"Dependable water supply" is defined as a firm source of water that is available year after year which does not vary due to climatological variations. Orange County's goal is to have a reliable, dependable system of water supply that would provide enough water to meet its constituents needs under all hydrological conditions.

Historically, a combination of local resources and MWD imported water has been available to meet these demands. However, MWD cannot meet the existing and predicted demand without using excess water supplies which others have a priority right to utilize. As those other areas exercise their priority water rights, MWD's back-up supply will shrink resulting in possible annual shortfalls.

MWD does not intend to rely on "luck" of weather conditions or the "possibility" that excess waters presently available will continue to be there, especially since other areas of water origin are developing rapidly. Historically, MWD has been successful in anticipating and providing for the future water needs of its member agencies and their constituents. Today, however, due to entitlement cutbacks on the Colorado River, an uncompleted State Water Project, Federal and State water policies in disarray, groundwater contamination and loss of Los Angeles' entitlements from Owens-Mono Basin, MWD is presently 700,000 acre feet behind its ability to provide reliable water service to its customers. With above-normal demand, Orange County will be experiencing a shortfall exceeding 100,000 acre feet. Fifty six percent of Orange County's water supply comes from outside the County. One-third of Orange County's water agencies are 100% dependent on imported water. Orange County no longer has the dependability we once had to provide the needed imported water supply.

Based on recent attempts to augment existing supplies and given a ten to twenty-year lead time for major projects, Orange County may face serious difficulties meeting the demand for water in the future. On the other hand, many projects and proposals for water supply augmentation and distribution are on the table. Based on the law of averages and a few wet years, coupled with Southern California's water management programs, MWD could have sufficient supplies to the year 2000. It is impossible to predict the exact scenario that will follow, however emphasis on water management is mandatory.

b) The Colorado River System

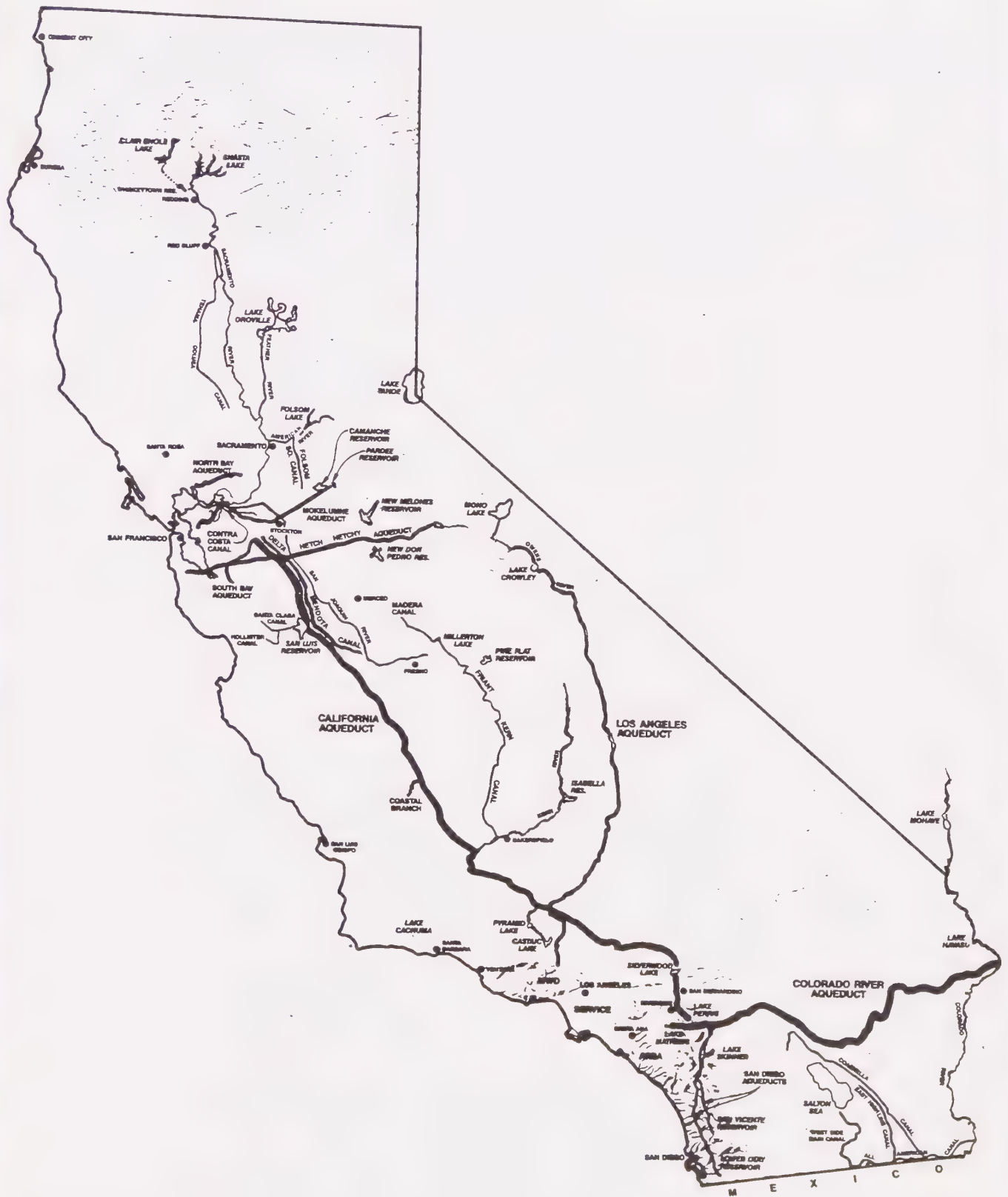
The Colorado River has been described as both the most controlled and litigated river system in the United States. It yields an average of 15.1 million acre feet (maf) annually. This amount is divided by law and agreements among the states of the Colorado River Basin and Mexico as per the Colorado River Compact of 1922. California's share is set at 4.4 maf/year; the MWD service area has had 1.2 maf available to it until 1990. There is now some variability to this annual share as Arizona increases its allocation. MWD's Colorado River Aqueduct, which brings the water most of the way to Orange County, went into service in 1941.

The allocation of Colorado River water is changing drastically. MWD has lost rights to more than 50 percent of its allotment as a result of a 1962 U.S. Supreme Court decision which settled a major water rights dispute between California and Arizona in favor of Arizona. This loss, combined with existing and anticipated federal court decisions affirming the claims of Native Americans, and increased diversions by a few upstream users, could reduce MWD's allotment to just 450 thousand acre feet (TAF) by the year 2000. The Metropolitan Water District has entered into a 35-year agreement with the Imperial Irrigation District, in which water conservation facilities and programs will be installed in Imperials agricultural lands and 100,000 acre-feet per year of conserved water will be diverted into the Colorado River Aqueduct by MWD.

The post-1985 allotments cited above can reasonably be considered firm even in the event of a drought in the Colorado River source regions. Because storage capacity on the Colorado River exceeds six years' required deliveries, MWD's allotment can be considered secure over a dry period of up to fifteen years.

c) The Sacramento River System and State Water Project

The Sacramento River system is the most important freshwater resource in the state, with an unimpaired annual run-off of about 18.9 maf on its four main tributaries. However, the system is subject to drought. As compared to the Colorado





River, there is very little carry-over storage on the Sacramento River system. Years with less than 10.2 maf are termed "critical" by the State Water Resources Control Board.

Consecutive critical years were experienced in 1933-34, 1976-77, and 1987-88. The longest drought on record for the Sacramento River system occurred from 1928 to 1934. It included four critical years and two "below normal" years, and is now used as a "critical period" standard for planning purposes. The period, 1987 to 1990, also has been severely dry, with three critical years and one below-normal year. It should be noted that the 1976-77 drought was of relatively short duration and, thus, more manageable than a less severe drought of longer duration.

The federal government moved first to develop the Sacramento River System. It began construction of the Central Valley Project (CVP) in the 1930's. During a recent four year period the CVP delivered an annual average of 6.67 maf for agricultural, municipal, and industrial uses in the Sacramento Valley. The Burns-Porter Act of 1960 authorized construction of the State Water Project (SWP). That legislation called for about 4.2 maf of the state's water resources (primarily the Sacramento River and its tributaries) to be incrementally developed so as to make water available for use in more arid parts of the state while maintaining water quality in the Sacramento River Delta. Operated by the State Department of Water Resources in coordination with federal operation in the Central Valley Project, the SWP made its first deliveries to MWD in 1971 via the California Aqueduct.

The State Department of Water Resources is continuing its efforts to complete the State Water Project as set forth in the Burns-Porter act of 1960. However, San Francisco Bay Area communities, environmental groups and the State Water Quality Control Board (WQCB) have expressed concerns about maintaining adequate fresh water flows in the San Francisco Bay for wildlife and protection from sea water intrusion into the upper delta. In addition, legislative proposals to amend water laws began to gain momentum in the late 1980's at the state and federal levels. The intent of many of these proposals has focused on revising procedures guiding the distribution of water allocated to agricultural uses from state and federal water projects. With 84% percent of water project resources committed to agricultural interests across the state (Source: MWD), some legislative proposals have identified water intensive crops such as rice, cotton and alfalfa as not appropriate to receive the inexpensive, subsidized project water.

The doctrine of "use it or loose it" is a concept that has evolved into water policy over the years to the detriment of conservation efforts. Presently, farmers can be penalized for reducing water use through the loss of future allocation rights. Policy studies have suggested that a more rational approach is

required. One proposal would permit urban users (water districts) to enter into agreements to purchase and transfer water lots from agricultural areas in exchange for updated and more efficient irrigation technologies allowing farms to continue to operate with less water.

The population growth trends around the San Francisco Bay area and the Los Angeles metropolitan area have also created occasional partnerships over water issues in the legislature between both urban areas. This is a change from past alliances which have emphasized the northern versus southern regions of the state.

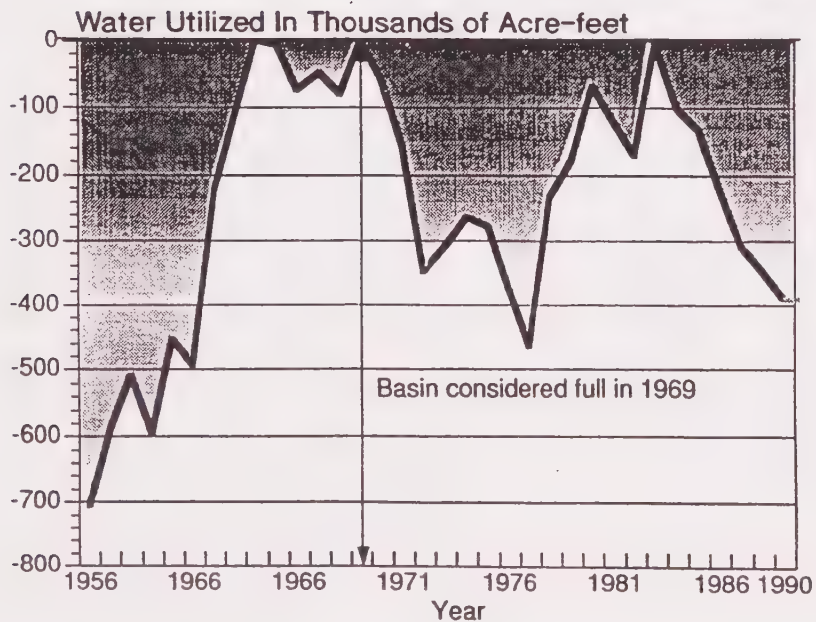
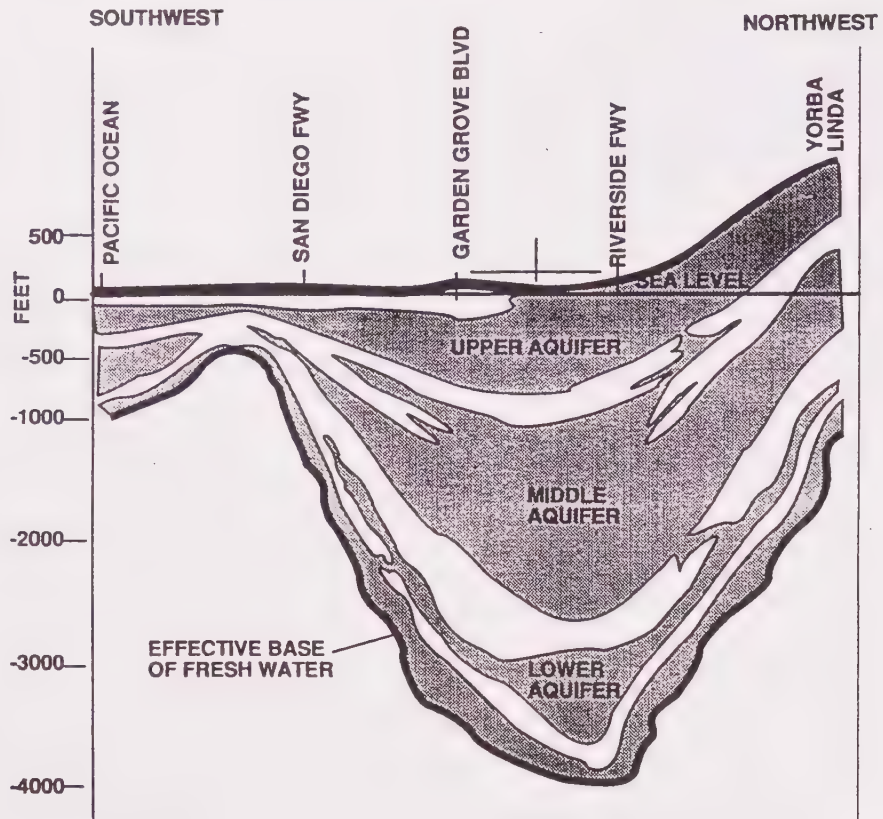
New water policy concepts have become increasingly relevant as the cost estimates for constructing new water storage and transfer facilities have jumped at a time when state and federal budgets are facing drastic shortfalls. The present yield of the SWP is estimated to be 2.3 MAF, of which about one-half is allocable to MWD. The fiscal benefits to urban water users may be dramatic if the implementation of agricultural conservation technologies were in broad use. Presently, planned additions to the SWP are: 1) north Delta facilities; 2) south Delta facilities; 3) additional units at the Delta pumping plant; 4) Kern Water (storage) Bank; 5) Los Banos Grandes Reservoir; and 6) interim CVP supply purchases. These additions are estimated to increase the SWP yield to 3.6 maf and MWD's share to 1.8 maf. It should be noted that additional facilities (e.g., off-stream storage reservoirs) will still be required in order to complete the State Water Project.

#### c) Water Resources Management

##### 1) Water Supply

MWD distributes imported water resources from the State Water Project and the Colorado River to its member agencies in Orange County. These local agencies then utilize the imported resources either to augment their local resource supplies or to provide for the majority of their water resource needs. In general, the southern and northeastern portions of the county are dependent on imported water supplies while the central portion of the county is served primarily by the groundwater basin. Chart 2-9 depicts the Groundwater Basin and its operational history.

In addition to MWD, key agencies involved in the supply and distribution of water are the Municipal Water District of Orange County and Coastal Municipal Water District, which wholesales imported water to many local retail agencies and the aforementioned Orange County Water District (OCWD), the groundwater management agency for the County's primary groundwater basin. The Municipal Water District of Orange County (MWDOC) represents most Orange County water providers in matters with the Metropolitan Water District (MWD) for imported





water allocations. The MWDOC staff also maintains watch over issues of water quality, conservation and legislation. The OCWD, like most water districts, is a Special District and functions as an independent agency in the county. The facilities of the Orange County Flood Control District and the U.S. Corps of Engineers, although intended primarily for flood control, also serve to conserve stormwater run-off for replenishment of the county's groundwater basin.

In addition to the District's mission to ensure the quantity of water in the Basin, the OCWD also works to ensure that the quality of water meets all regulatory and health standards. For that reason, OCWD operates Water Factory 21 at their facility in Fountain Valley. Water Factory 21 is an advanced wastewater treatment facility designed to prevent sea water intrusion into the basin. Highly treated wastewater is processed through a reverse-osmosis membrane process and injected along the coast to create a hydraulic barrier so that saltwater does not enter and contaminate the Basin.

Seasonal water storage at Prado Dam is a proposed program to conserve high quality storm flows for recharging the groundwater basin. The U.S. Army Corps of Engineers is working with OCWD to implement this program. Assuming a favorable decision, OCWD can look forward to salvaging an additional 5,000 AF on an annual average. Even during dry periods such as the present drought, significant volumes of storm water can be conserved in the Prado Basin. Spring run-off from snow melt and late season rains can be captured without impeding flood control. This program offers the opportunity for improved water quality, energy savings from reduced importation of water and greater insurance against shortages.

Water reclamation has become a principle method of increasing Orange County's local resources. Reclamation projects include: 1) the Green Acres Project (GAP) expansion; 2) Water Factory 21 expansion; and 3) the Alamitos Barrier Project modification.

**Green Acres Project Expansion:** Phase II of the Green Acres Project will be launched during the 1990 fiscal year with a project report for a 10 Million Gallons per Day (MGD) treatment plant to serve reclaimed water to Huntington Beach and Newport Beach. Pipeline construction for this second phase of the project is planned for 1991-92. In addition, OCWD and the Irvine Ranch Water District are discussing a possible intertie of the Green Acres system with IRWD's wastewater re-use system. This project would strengthen the delivery capabilities of both OCWD's and IRWD's reclamation system.

**Water Factory 21 Expansion:** Water Factory 21 began operations in the fall of 1976. OCWD existing figures show that although the plant was designed to reclaim 15 MGD for sea water intrusion protection, it has not operated consistently at that level except during a brief start-up testing phase.

Recently, with California facing another year of drought, OCWD accelerated plans to modify Water Factory 21 to achieve higher production levels. Major improvements began in early 1988 to increase the plants performance, reliability and economy. New low-pressure membranes were installed in 1989, the cooling system was rebuilt to permit faster feed times and the injection well system was rebuilt to enable the full flow of the product water to be placed in the coastal barrier.

**Alamitos Barrier Project Modification:** OCWD and the Los Angeles County Flood Control District operate a sea water intrusion facility (the Alamitos Barrier) using imported water in quantities of up to 8,000 acre-feet/year. A feasibility study is presently investigating the substitution of reclaimed water from the Los Angeles County Sanitation District's Long Beach plant to this project. An advanced waste water treatment plant similar to Water Factory 21, including reverse osmosis technology, would be necessary to bring the water into compliance with health and regulatory standards.

## 2) Water Quality

An important consideration in the management of both the local and imported water resources described above is water quality. Water quality is defined in terms of the physical, chemical and biological properties of water pertinent to the use under consideration. The groundwater quality in the Orange County Basin has been deteriorating over the years due to the infiltration of chemicals and salts from agricultural operations, saltwater intrusion, land outfalls, the poor quality water flowing into the county via the Santa Ana River, and the poor quality of Colorado River water used to recharge the groundwater basin. Colorado River water, with more than 700 parts per million of total dissolved solids (TDS) is also delivered directly to both urban and agricultural users, presenting problems to both. This problem is most prevalent in the South County area which is very dependent on imported water.

With respect to imported water supplies, an important fact is that the U.S. Public Health Standard of 500 ppm TDS for drinking water is exceeded by the imported Colorado River water. While blending of groundwater and imported water has helped somewhat, substantial portions of the county groundwater basin have in excess of 600 ppm TDS. The importation of SWP water which has 230 ppm TDS for groundwater recharge and direct delivery has improved the water quality situation somewhat but increasing demands on the SWP as well as drought may limit future availability. To reduce the TDS, a number of de-nitrification plants have been put into operation, and two groundwater desalters are in advanced design. In any case, the use of bottled water and home water filters and softeners continues to expand throughout the county.

During the 1960's the State legislature recognized the interrelatedness of water supply and water quality and assigned responsibility for both water rights and water quality control to a single agency, the State Water Resources Control Board, and its nine regional boards. Additionally, federal laws relating to water quality and federal water projects affect Orange County's water resources.

The water pollution control program in California has been conducted through regional water quality control boards for 30 years. In 1967, the State Water Rights Board and Water Pollution Control Board were merged into the State Water Resources Control Board (SWRCB). Two years later, the enactment of the Porter-Cologne Water Quality Control Act greatly strengthened the powers of the SWRCB and provided a strong legal framework for a State program of water pollution control.

The Porter-Cologne Water Quality Control Act, administered in the county through the Santa Ana and San Diego Regional Water Quality Control Boards, establishes and enforces wastewater discharge requirements. The County Health Care Agency enforces the State health standards for swimming and related water contact sports and other water-oriented activities. The Orange County Water District (OCWD) and the Municipal Water District of Orange County are both concerned with the quality of imported water. Water quality monitoring is performed by several agencies including the State Water Resources Control Board, the Regional Water Control Board - Santa Ana Region, the Department of Health Services and the Orange County Environmental Management Agency.

In addition to the above programs, Section 208 of the 1972 Amendments to Federal Water Pollution Control Act required that areawide wastewater treatment management process be implemented to assure adequate control of pollution. Orange County is within the South Coast Region for 208 planning purposes. The Southern California Association of Governments (SCAG) as the Council of Governments for the region is designated the lead agency for the 208 plans.

The two local water quality programs that involve the County include the San Diego Creek Sediment Monitoring Program and the Agricultural Best Management Practices Program (AGBMP). The objectives of these programs are to reduce sedimentation of the the Upper Newport Bay. As a result of the sediment monitoring program, in-channel and in-bay basins have been constructed to retard the movement of sediments. The AGBMP program reduces sedimentation by monitoring the implementation of erosion controls on the agricultural land in the San Diego Creek watershed.



As a result of the 1987 Amendments (Water Quality Act) to the Clean Water Act of 1972, the Environmental Protection Agency developed a plan to monitor and control non-point source pollution. This plan, which is administered at the local level by the Regional Water Quality Control Boards, requires operators of municipal stormdrain systems to obtain stormwater and urban runoff permits. The requirements of the permit include water quality monitoring and the development/implementation/monitoring of the effectiveness of Best Management Practices (BMP's) to reduce the contamination of receiving waters from stormwater runoff.

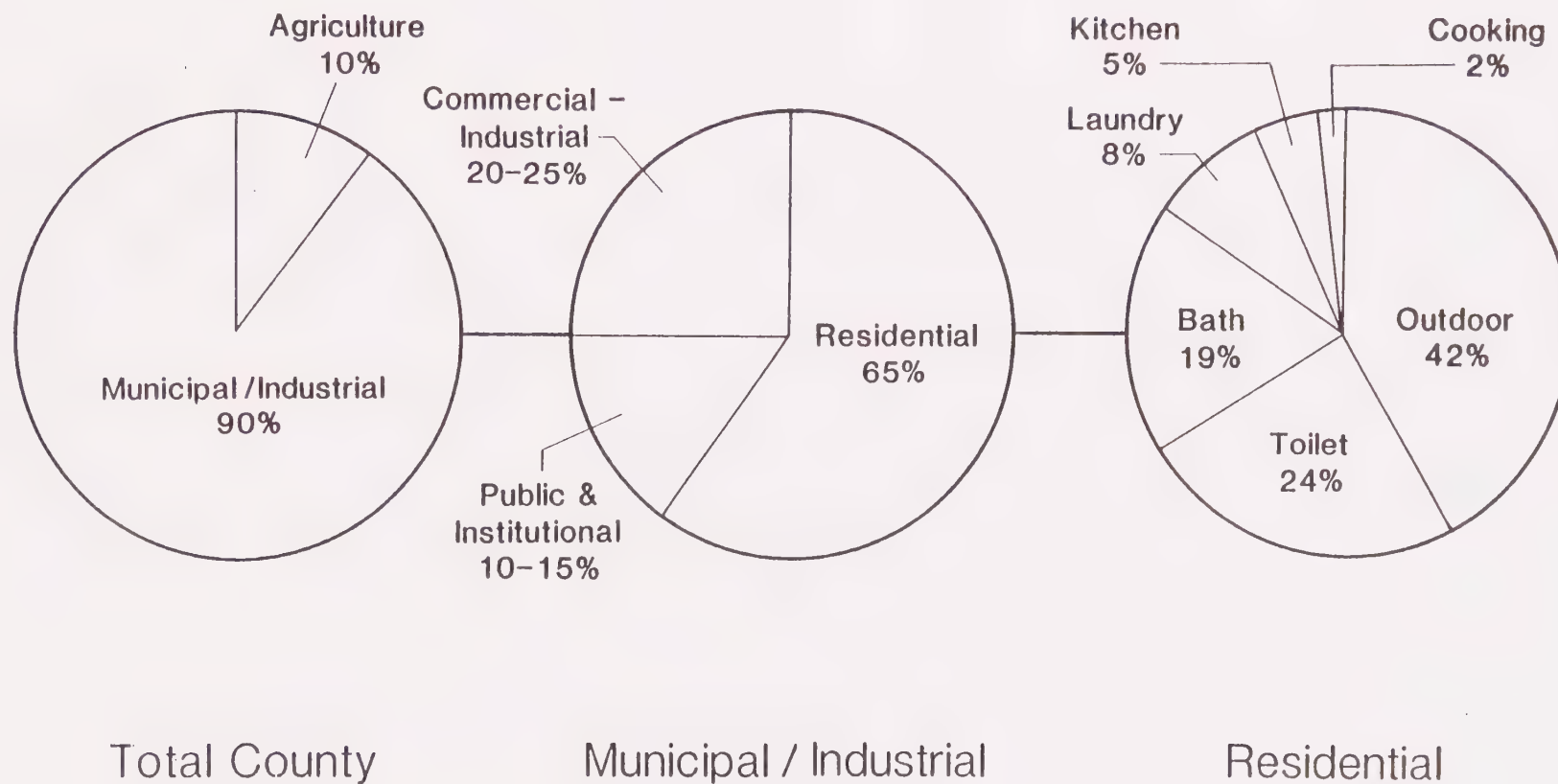
Orange County and its incorporated cities have been issued these National Pollutant Discharge Elimination System (NPDES) permits by the San Diego and Santa Ana Regional Water Quality Control Boards. The two water quality monitoring programs discussed above have been approved and implemented while future programs may include Drainage Facility Inspection, Water Pollution Investigation/Enforcement, BMP's and Public Education.

As the 208 process and other water quality programs continue to play an increasing role in the County, it is essential that efforts towards coordination among the various state, regional, and local agencies involved in water quality management continue. Such activities are included as implementation programs in Chapter six: Water Resources Component.

OCWD, the Santa Ana Watershed Project Authority (SAWPA), Western Municipal Water District (WMWD), and the Metropolitan Water District has financed construction of the Arlington Desalter located in Riverside County near Corona. The desalter lowers the high water table in the Arlington Sub-basin and also provides demineralized water to the Santa Ana River for recharging Orange County's groundwater basin. Additional desalters such as the Irvine desalter and Chino Basin desalters are expected to reduce nitrate concentrations and to augment present replenishment supplies.

#### d. Water Use in Orange County

In order to describe future water consumption, it is important to determine the current major areas of water usage. As stated earlier, water demands within the county can be categorized into two types of uses: municipal and industrial (M&I) and agriculture. M&I demand includes water for residential, commercial, industrial, institutional and park/greenbelt irrigation purposes and unaccounted for water uses. The following sections describe the water use characteristics of each M&I category.



## Water Use In Orange County

Source: Orange County

CHART

2-10

## 1) Residential Water Demand

Residential demands account for approximately 61 percent of the water use in Orange County. Within the residential category, approximately 58 percent is for interior use with the remaining 42 percent used for landscape irrigation purposes and other outdoor uses. Chart 2-10 illustrates the average distribution of indoor residential water use.

## 2) Water Demands By Residential Land Use Category

Previous estimates of water demand by land use type have identified the relationship between land use and water demand throughout the county.

- ° Low density residential development requires the most water per dwelling unit, mainly because of the large amount of water needed for outdoor uses.
- ° Medium high (townhomes and condominiums) and high density residential (apartment complexes and mid-rise) require less indoor use than other densities and very little outdoor water per dwelling unit.
- ° High density development has a greater potential for conservation than low density development. High density development generally has a centrally controlled and separately metered irrigation system and a single entity controls the application of water for a large area. Low density development has individual, small, and usually manual systems with a different operator at every home and are metered with domestic uses.

## 3. Non-Residential Water Demands

The per acre water demands of most of the non-residential land use categories are relatively equal, but some interesting differences do appear:

- ° The majority of industrial and commercial water demand is for indoor uses. Reclaimed water is increasingly being utilized for outdoor landscaping uses for new non-residential developments.
- ° Irrigated agriculture approximates medium density residential use demands.
- ° The water demand of institutional uses (schools, libraries, etc.) is typically balanced between indoor and outdoor.

## 4. Existing and Projected Water Resource Demands

In fiscal year 1988-89, about 609,000 acre-feet of water were consumed for municipal and industrial purposes county-wide.



Approximately 30,000 AF were used in agriculture. Because of this preponderance of municipal and industrial water use in the county, this element focuses on demand and supply for those uses. Of the 609,000 AF used for M&I purposes in 1988-89, about 61 percent was used in private homes and residences, 18 percent was used in commercial areas, 11 percent in industrial areas and activities, and 10 percent was used to support public and institutional uses including parks, schools, and roadway landscaping and unaccounted for water.

OCP-88 projects a 17.5 percent increase in population for the period 1991-2010 with a concomitant increase in housing and a relative increase in employment. The focal point of growth in Orange County's water demand is projected to continue to shift gradually southward during the next 20 years. This trend is similar to the overall demographic trends and resultant demands discussed in Section B (County Growth Trends) of this chapter. Specifically, that significant increases in water resource demands are anticipated in South County as least through the year 2010. For analytical purposes, South County is generally considered to be the area south and east of the Costa Mesa Freeway (State Highway 55).

During the 20 year study period about 71 percent of the county's net population growth is projected to occur in the southern region. Although the rate of growth in North County is declining, this area will still contain the majority of the county's population and water demand throughout the study period. Not only is the population base in the North County substantially larger, but as older communities, fewer plumbing facilities and landscaping programs utilize new "low flow" and "water wise" concepts. In 1980, 77 percent of the county's 1,931,570 people lived in the north. By 2010, it is expected that this figure will fall to 59 percent. County employment patterns are very similar to the population trends. Overall, the county's employment base is projected to grow slightly faster than population, with a 26.7 percent gain between 1991 and 2005. This compares to a projected population growth of 14 percent during the same period. Population and employment trends will influence the water demand for Orange County. South County is projected to generate about 42.9 percent of the water demand between 1991 and 2010. This projected increase from 177,300 acre feet in 1991 to 310,550 acre feet in 2010 is consistent with the overall growth trends in South County.

Historically, future water demands were determined as the product of projected service area population and a projected value of per capita water use. Such an approach is still useful but becomes limited when attempting to ascertain the impacts to water demand other than population. For several years, MWD has been using a forecasting model, MWDMAIN, that considers growth trends in population, number and type of housing units, employment, water and wastewater rates, conservation activities (e.g., education, retrofit, plumbing codes, etc.) and other

variables such as the number of persons per household and other specific water use parameters. Forecasts can be revised and updated as additional data and trends are identified. The model provides water demand forecasts by residential, commercial, industrial and public/ unaccounted for water. MWDMAIN results from interim report number 3, November 1987, are as follows:

YEAR	POPULATION	AVERAGE DEMAND ACRE-FEET	PER CAPITA GPCD
1989-90	2,314,088	568,939	219
1994-95	2,492,967	617,416	221
1999-00	2,676,085	666,933	222
2004-05	2,841,455	711,523	224
2009-10	2,986,073	750,307	224

(Source: MWDOC)

On the average over the period of projections, residential water use accounts for 61 percent of the total, with commercial accounting for 18 percent, industrial uses 11 percent and public/institutional/unaccounted for water at about 10 percent. On a per-capita basis in Orange County, the overall consumption for all uses (except agriculture) is expected to increase from about 226 gpcd in 1990 to 243 gpcd in 2010. The increase in the per-capita consumption results from the changing employment trends, commercial/industrial development versus residential development, development of steeper hillside areas requiring more slope area per usable developed acre and development of the inland areas which are hotter and drier. The increasing need for potable supplies will be somewhat offset by the development of water reclamation systems for irrigation of golf courses and common greenbelt areas.

Per capita water demands may decrease as result of three general trends: 1) higher density development, 2) water availability and price increases, and 3) public awareness. However, for planning purposes it is conservatively assumed that per capita water demand for all M&I purposes will remain close to 1990 levels for the period 1991-2010. Therefore, it seems likely that the county's future demands will have to be met by either additional water supplies developed or managed by MWD and local water agencies, increased efficiency in water use (conservation), or a combination of both. Chapter Six: Water Resources Component outlines several potential programs to support these efforts.

#### 4. Air Resources

##### a. Introduction

The dynamic growth of Southern California has earned it the status of being the eleventh largest economic center in the world. If the growth trends of the last ten years continue, the region will experience almost a 50% increase in population by the year 2007. This growth has manifested itself in three regional problems which are closely related: rapid growth, transportation, and air quality. Population growth means more traffic and more businesses, and each of these has adverse effects on air quality.

No single national resource has such a direct bearing on the public health, safety and welfare as air. It is one of the basic ingredients of the environment, essential to all forms of life. Unlike other resources it has no substitutes, cannot be imported when local supplies are deteriorated, and allows no reduced-use conservation measures. However, like other resources, urbanization has deteriorated its quality.

Orange County lies within one of the most severely air polluted regions of the country. An adverse combination of heavy pollutant emissions, meteorology, topography, and air chemistry result in a situation in which state and national standards for air quality are exceeded regularly.

##### b. Historical Background

###### 1 ) Historical Legislation

In 1970, Congress passed the Clean Air Act. It requires the administrator of the United States Environmental Protection Agency EPA to establish National Ambient Air Quality Standards (NAAQS) for six major pollutants: carbon monoxide, hydrocarbons, oxides of nitrogen and sulfur, particulates and photochemical oxidants. The Act requires each state to attain and maintain federal standards through the development of State Implementation Plans (SIPs). Each state is to develop a plan and submit it to the Environmental Protection Agency (EPA) for approval. State Implementation Plans require emission restrictions and timetables for compliance, inspections, air monitoring systems and adequate staff and funding. In cases where a state does not draft a satisfactory SIP, the EPA is required to supply one. Because the EPA failed to meet its August 1974 deadline for publication of guidelines for the SIPs, the EPA Administrator defined individual deadlines for each state. California's deadline for submission of its first SIP was July 1, 1979.

The California Legislature, recognizing that air quality was a regional problem in Southern California, enacted the Lewis Air Quality Management Act of 1976. The Act reorganized the Southern California Air Pollution Control District into the South Coast Air Quality Management District (SCAQMD) with authority to regulate



stationary sources of air pollutants in the region. The SCAQMD in conjunction with the Southern California Association of Governments (SCAG) is charged with developing a comprehensive plan for attaining and maintaining state ambient air quality standards. The Air Quality Management Plan (AQMP) is to be adopted by SCAG and SCAQMD and submitted to the California Air Resources Board. The AQMP is then to be included in the SIP for EPA's approval. The Act further requires continuous implementation monitoring and updates of the original plan every two years. For detailed information regarding the Air Quality Management Plan, refer to Section V, Subsection B. of this chapter.

In 1977, Congress amended the Clean Air Act. The new law placed additional requirements on SIPs from non-attainment areas. A non-attainment area was defined as one unable to demonstrate attainment of the NAAQS for oxidants and carbon monoxide by December 31, 1982 after implementation of all reasonably available control measures. The South Coast Air Basin (SOCAB) is designated as such a non-attainment area. The 1977 Amendment required non-attainment areas to prepare a SIP in 1982 outlining additional standards designed to meet NAAQS by 1987. It also required the adoption and implementation of a motor vehicle inspection and maintenance (I/M) program as part of the 1979 SIP.

## 2 ) Air Quality Management Plan Process

SCAG and SCAQMD, in a joint effort, elected to meet state and federal requirements through the Air Quality Management Plan. SCAG and SCAQMD were also required by the Lewis Act to designate subregional planning agencies responsible for preparing preliminary plans for each of the six subregions within SCAG's jurisdiction as a Metropolitan Planning Organization. This was intended to ensure the participation of local governments in the development of the AQMP. The County of Orange was designated as the subregional agency for AQMP planning in Orange County.

SCAG and the SCAQMD forwarded the 1979 AQMP to the California Air Resources Board (CARB) in January 1979. After revisions, the CARB approved the AQMP and submitted it to the EPA. Because the AQMP did not contain a legislatively adopted inspection and maintenance program, the EPA placed the Clean Air Act mandated sanctions on California. These sanctions prohibited construction of new major development which are considered pollution sources. Additional sanctions were placed on California in 1980 in response to the continuing delay in adopting an I/M program. The latter sanctions involved the loss of federal funds for transportation and sewer projects.

The 1982 AQMP revision built upon the process established earlier. Utilizing a refined emissions inventory and improved modeling techniques, both the SCAQMD and SCAG determined that it would be impossible to attain the 1987 ozone and carbon monoxide deadlines even with the strictest feasible controls on both motor vehicles and industrial sources. Attainment of the ozone standard would require

major shifts away from petroleum products and was unlikely to come before the year 2000. The AQMP contained many control measures which relied on new technologies expected to become available, as well as a long-range strategy. The two agencies committed to revise the plan in three to five years to better define future control efforts.

The 1988 AQMP revision establishes the regional attainment of federal air quality standards by the year 2007. The 1988 AQMP process is an attempt to promote ways in which growth can occur, yet provide mitigation for externalities such as traffic congestion and the resultant impact on air quality. In order to make significant progress toward the regional attainment goal, the 1988 AQMP contains a series of control measures. Each measure proposes a set of actions designed to cause a reduction in emissions. For a detailed chronology of air quality legislation and planning, see Appendix D.

During the 1982 AQMP revision process and throughout the 1988 revision process, various sub-regional processes were incorporated to solicit local jurisdiction participation and aid in the AQMP revision process. Among these sub-regional processes are the Reasonable Further Progress report, the Reasonable Extra Effort Program, and the Early-Action Plan.

The Reasonable Further Progress (RFP) report is an annual survey of local governments and other implementing agencies. The analysis focuses on control measures scheduled for implementation during the report year and previous years. Whenever possible, the potential effectiveness of individual measures in reducing air pollution is discussed.

The Reasonable Extra Effort Program (REEP) is a response by EPA Region IX (California) to the problem of non-compliance to the Clean Air Act by 1987. Under REEP, EPA has identified existing and new control measures, and has requested that affected districts (South Coast, Fresno, Sacramento, and Ventura) develop schedules for adoption. These schedules are to be submitted as amendments to the State Implementation Plan. Additionally, these post-1987 areas are to revise the New Source Review regulations, develop transportation control measures where feasible, and participate cooperatively in audits of their enforcement and permitting programs. As an important component of this program, the Air Resources Board is also developing short-range measures to further reduce emissions from motor vehicles. SCAG and AQMD first actively participated in EPA's REEP in 1985.

In late 1986 and early 1987, the AQMD took some significant actions to directly address the less-than-expected progress in reducing Reactive Organic Gas (ROG) emissions in the Basin. An Early-Action Plan (EAP) for Short-Range Control Measures for the projected 1987 revision to the AQMP was completed. The EAP commits the AQMD to expedite development and begin adoption proceedings for 13 control measures, some of which are new, on an earlier schedule than contained in the 1982 Plan update. Included in the EAP is a

revision of Regulation XIII and New Source Review with the objective of significantly reducing emissions from those new sources which fall below the current thresholds of Regulation XIII or are exempt from its provisions.

c. Air Quality Overview

1 ) Regional Overview

Although overall air quality in the South Coast Air Basin has shown improvement in recent years, levels of two pollutants, ozone and nitrogen dioxide, are still the highest in the United States.

The Basin consists of the non-desert portions of Los Angeles, Riverside and San Bernardino counties and all of Orange County. Its area is approximately 6,600 square miles. The Basin is bounded on the west by the Pacific Ocean, on the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains, and on the south by the San Diego County line. The 1980 census showed a population of 10.9 million, with 7.4 million people concentrated in the Los Angeles County portion.

Meteorological conditions in the Basin are more conducive to photochemical pollution formation than those in any other large urban area in the nation. As a result, increasingly stringent pollution controls have been placed on industrial sources in Los Angeles County since the late '40s and in the other three Basin counties since the '50s. California was the first state in the country to require controls on motor vehicles.

Because of these controls, there has been a gradual decline in atmospheric pollutant concentrations, despite a 125 percent population increase between 1950 and 1980. By the '80s, peak ozone levels had dropped more than 30 percent from the highs recorded in the '50s and by 1985 all stations in the Basin were in compliance with state and federal standards for lead and sulphur dioxide.

2 ) Orange County Climate

Climate is probably the most important factor in the growth of Orange County. Implications for the health and well-being of County residents as well as the environmental quality are such that it is essential that we know more about the weather and climate, and the relationship between land use, transportation, and air quality. Such characteristics as temperature, rainfall, winds, humidity and cloud coverage affect our energy needs, recreation activities, air quality, water resources, fire protection programs, flood control, airport management, agricultural crops, native vegetation, and much more.

Weather in the County, and in the South Coast Air Basin as a whole, is a function of a semi-permanent high-pressure zone over the eastern Pacific Ocean. The resulting climate is mild, typified by



warm temperature and light winds, the dominant wind pattern being a daytime sea breeze (on-shore) and a nighttime land breeze (off-shore). This prevailing condition of alternate light winds tends to carry pollutants inland during the day, and drift them back toward their point of origin during the evening.

The topography of the area creates local distortions in the prevailing meteorological pattern. Air currents are directed by advection through mountain passes or deflected aloft by a "chimney effect" produced by the solar heating of mountain slopes. The most significant effect of this general topographic distortion in the Orange County area is a predominant daytime air mass transport across the Long Beach/San Pedro area, through northern Orange County, and into the San Bernardino/Riverside vicinity.

The average monthly temperatures range from about 52 degrees F. in the coastal areas in January to 72 degrees F. in the inland areas of the coastal plain in August. The difference in temperatures between the coast and inland areas is greatest in the summer months. The winter maximums are about the same while inland minimums are lower throughout the year because the ameliorating influence of the ocean is weaker. Temperatures are significant in terms of their effects on agriculture and outdoor recreation.

The County's rainfall regime is characteristic of mediterranean climates. A modest average of 14 inches falls principally during the winter months (December to March). The County's rainfall also exhibits characteristically wide variations annually (from a low of 3.6 inches in 1961 to a high of 32.1 inches in 1940). It is not unusual for winter storms moving in from the Pacific to produce 3 to 10 inches of rainfall within a 24-hour period. The implications for water supply, irrigation, flood, fire and erosion control are considerable.

Fog is a distinctive feature of the County's weather. During April, May and June, fog or low clouds form at night and often persist until noon. Visibility in the fog remains adequate for travel, however. During the summer, with the semi-permanent low in the desert areas and a relatively high pressure area off the coast, varying degrees of fog or cloudiness occur in the coastal area. Many people seeking relief from heat waves and brilliant sunshine of the interior coastal plain are surprised by coastal fog and low temperatures which may also persist until noon. Heavy fog in December and January is also a predictable occurrence. Annual average relative humidity is 70% at the coast and 56% in the eastern inland areas.

With very light average wind speeds, the South Coast Air Basin atmosphere has a limited capacity to disperse air contaminants horizontally. The prevailing northwest winds of the summer months associated with high pressure off the coast give way to those generated by the passage of storm fronts in winter months. Summer winds speeds average slightly higher than winter wind speeds. The dominant daily wind pattern (daytime sea breeze and a night-time

land breeze) is broken only by occasional winter storms and infrequent strong northeasterly Santa Ana flows from the mountains and deserts north of the Basin. Santa Ana winds, with velocities of up to 70 miles per hour, send dry air from the desert to the coastal plain. On the way, temperatures are increased, often to 100 degrees F. This combination of high temperatures and velocities, and low humidity coming at the end of the dry summer months, creates an exceedingly hazardous potential for wildland fires. Boat harbors are also seriously affected. More common are gentler daily sea breezes and nightly offshore breezes and moderate coastal temperatures.

On practically all spring and early-summer days, most of the pollution produced during an individual day is moved out of the Basin through mountain passes or is lifted by the warm, vertical currents produced by heating of mountain slopes. In those seasons, the Basin can be "flushed" of pollutants by a transport of ocean air of sixty miles or more during the afternoon. From late summer through the winter months, the flushing is less pronounced because of lighter wind speeds and the earlier appearance of off-shore (drainage) winds. With extremely stagnant wind flows, the drainage winds may begin near the mountains by late afternoon. Pollutants remaining in the Basin are trapped and begin to accumulate during the night and the following morning. A low average morning (6:00 a.m. to noon) wind speed in pollution source areas is an important indicator of air stagnation potential.

Under ideal meteorological conditions and irrespective of topography, pollutants emitted into the air would be mixed and dispersed into the upper atmosphere. However, the Southern California region frequently experiences temperature inversions in which pollutants are trapped and accumulate close to the ground. The inversion, a layer of warm, dry air overlaying cool, moist marine air is a normal condition in the southland. The cool, damp and hazy sea air capped by coastal clouds is heavier than the warm, clear air aloft which acts as a lid through which the marine layer cannot rise. The heights of the inversion is important in determining pollutant concentration. When the inversion is 2,500 feet or so above sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet, the terrain prevents the pollutants from escaping and it backs up along foothill communities. Below 1,200 feet the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the daylight hours. The mixing height normally increases as the day progresses, because the sun warms the ground, which in turn warms the surface air layer. As this heating continues, the temperature of the surface layer approaches the potential temperature of the base of the inversion layer. When these temperatures become equal, the inversion layer begins to erode at its lower edge. If enough warming takes place, the inversion layer becomes weaker and weaker and finally "breaks". The surface air layers can then mix upward without limit. This phenomenon is frequently observed in the middle to late afternoon on



hot summer days when the smog appears to clear up suddenly. Winter inversions frequently break by mid-morning, thereby preventing contaminant build-up. During winter months, the inversion layer is broken up by passing storms. In the spring, April through June, the inversion layer is normally high and air quality is good. The inversion layer descends progressively during summer with the most adverse air quality conditions in August and September.

Compounding this problem of pollutant concentration is the phenomenon of photochemistry in which certain original, or "primary," pollutants (mainly reactive hydrocarbons and oxides of nitrogen) react under the influence of the ultraviolet radiation of sunlight to form "secondary" pollutants (principally oxidants, the most serious problem in this region). This photochemical process is time-dependent which means that secondary pollutants can be formed many miles downwind from the emission source of their primary precursors. Photochemical smog levels are much lower during winter due to the lack of strong inversions during the daylight hours and the lack of intense sunlight which is needed for the photochemical reactions. The potential for high concentrations varies seasonally for many contaminants. During late spring, summer and early fall, light winds, low mixing heights and brilliant sunshine combine to produce conditions favorable for the maximum production of photochemical oxidants, mainly ozone. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and oxides of nitrogen to form more of the typical photochemical smog. Carbon monoxide is not as great a problem in summer because inversions are not as low and intense in the surface boundary layer (within one hundred feet of the ground) as in winter and because horizontal ventilation is better in summer.

#### d. Air Quality Analysis

Almost without exception, human activities all create some type of pollution. When these activities are concentrated in space, and when climate and geographic and atmospheric conditions restrict air currents, waste products collect in the air. The result is air pollution. Pollutants can be smoke, dust, fumes, vapors, pollens or any toxic substance that interferes with the use of air by humans and other living things. Many economic as well as health effects of pollutants have been identified: they can erode and discolor building materials; break down rubber, paint and fabrics; slow the growth of and/or kill plants; and increase the risk of cancer and respiratory ailments. It is reasonable to assume that there are other effects that have not yet been identified.

Air pollutant emissions are generally grouped into three source categories: natural, stationary and mobile. A major form of **naturally produced air pollution** is photochemical smog which is caused by complex atmospheric reactions involving oxides of nitrogen and reactive organic gases with ultraviolet energy from sunlight. "Photochemical Oxidants" can include several different pollutants, but consists primarily of ozone (more than 90 percent) and a group of chemicals called organic peroxy nitrates. Photochemical oxidants are created in the atmosphere rather than emitted directly into the air.



**Stationary sources** are man-made facilities or structures which generate emissions. Examples are as follows: fossil-fueled electric generation plants; domestic and commercial boilers and furnaces; asphalt batching plants; dry cleaning operations; and auto painting establishments. The major air pollutants emitted by stationary sources are carbon monoxide (CO), hydrocarbons (HC), oxides of nitrogen (NO<sub>x</sub>), oxides of sulfur (SO<sub>x</sub>), and total suspended particles (TSP).

**Mobile source emissions** are divided into on-road and off-road sub-categories. On-road sources are licensed motor vehicles operating on the public road system, including motorcycles; automobiles; and light, medium, and heavy-duty trucks. There are five major air pollutants emitted by motor vehicles: carbon monoxide (CO), hydrocarbons (HC), oxides of nitrogen (NO<sub>x</sub>), oxides of sulfur (SO<sub>x</sub>) and total suspended particles (TSP). Emission inventories, both current and projected, are maintained for each of these pollutants by the South Coast Air Quality Management District. Gasoline engines account for the majority of on-road CO, NO<sub>x</sub>, and HC, while diesel buses and trucks account for most of the SO<sub>x</sub> and TSP.

Mobile sources are presently a major contributor to air pollutant emissions in urban areas. As a result, projects that increase vehicle use are acknowledged by the label "indirect sources". An indirect source is any facility, plant, installation, or activity that has a significant amount of mobile source activity associated with its operation or use. Parking facilities, roadways, and airports are examples of indirect sources. Included in the parking facility category are shopping centers, sports complexes and other large facilities.

Most indirect sources include emissions from stationary sources. Airports, for example, have stationary source emissions associated with refueling operations, as well as space heating and cooling of the terminal. Aircraft operations also contribute to the total emissions. This is an example of how a project's contribution to mobile source emissions and stationary source emissions must be considered.

To assist in the evaluation of the air pollution situation, the various contaminants and their health effects are discussed briefly below.

**Carbon monoxide (CO)**, by weight and volume the most common air pollutant in the South Coast Air Basin, is a product of the combustion of organic compounds, including wood, coal, and hydrocarbon-based fuels. It is a colorless, odorless, tasteless gas that is slightly lighter than air. CO acts as a poison by interfering with the blood's ability to carry oxygen and transfer it to other tissues. In order to present a clear threat to human life, CO needs to be highly concentrated under very stagnant air conditions. In the case of transportation facilities, such stagnant air is extremely rare.

**Oxides of nitrogen** emissions result from high-temperature combustion of fossil fuels. Accordingly, the high-speed internal combustion engine contributes heavily to NO<sub>x</sub> emissions, as do various industrial facilities (stationary sources). Nitric oxide (NO) is the most prevalent form of such emissions, while other oxides, (NO<sub>2</sub> and NO<sub>3</sub>) are

formed by chemical oxidation of the lower-order nitric oxide. Like reactive hydrocarbons, oxides of nitrogen are important ingredients in the formation of photochemical smog and, hence, are important to air quality analysis.

Nitrogen dioxide ( $\text{NO}_2$ ) is the most toxic pollutant in this group. It has been shown to contribute to respiratory problems and, in high concentrations, can be fatal as a result of pulmonary edema (swelling and degeneration of lung tissues).

**Sulfur oxides** are also a product of combustion. Among on-road sources, diesel trucks and buses are the main contributors because of the combustion characteristics and sulfur content of diesel fuel. The species of concern is sulfur dioxide ( $\text{SO}_2$ ). It is a non-flammable, colorless gas that has a pungent odor. By chemical reaction, sulfur dioxide plays a role in the formation of various sulfate compounds including, under the correct atmospheric conditions, a sulfuric acid mist. Low-sulphur fuels have tended to reduce the impact of motor vehicles as a source of sulfur oxides pollution.

**Photochemical oxidants** are created in the atmosphere. Reactive organic gases, including hydrocarbons, and oxides of nitrogen are the emitted contaminants which participate in the reaction. Ozone is a toxic gas which is produced by the photochemical process. Photochemical oxidant is a characteristic of Southern California type smog, and reaches its highest concentrations during the summer and early fall. The common manifestations of oxidants are damage to vegetation and cracking of untreated rubber. Photochemical oxidants in high concentrations can also directly affect the lungs, causing respiratory irritation and possible changes in lung functions.

**Hydrocarbons** emissions, in and of themselves, are not generally regarded as a health hazard. Methane accounts for a significant portion of total hydrocarbon emissions (THC). Because it is rather inactive chemically, it is of little importance to air pollution analysis. The remaining hydrocarbons are chemically reactive and are important precursors to photochemical smog. Hydrocarbon emissions result from the incomplete combustion and evaporation of hydrocarbon-based fuels such as gasoline.

Atmospheric **particulates** consist of soot, dust, aerosols, fumes, and mists. Particulate matter consists of particles in the atmosphere resulting from many kinds of dust and fume-producing industrial and agricultural operations, from combustion, and from atmospheric photochemical reactions. In areas close to major sources, particulate concentrations are generally higher in the winter, when more fuel is burned, and meteorological conditions favor the build-up of directly-emitted contaminants. However, in areas remote from major sources and subject to photochemical smog, particulate concentrations are higher during summer months. In the respiratory tract, very small particles of certain substances may produce injury, or may contain absorbed gases that are injurious. Suspended in the air, particulates of aerosol size can both scatter and absorb sunlight, producing haze and reducing visibility. They can also cause a wide range of damage to materials.

For modeling purposes, sources are classified according to the following geometric configurations: point, line and area. Examples of point sources are fossil-fuel electric power generating plants and large municipal incinerators. Roadways and airport flight patterns are classified and modeled as line sources. Oil refineries and residential housing tracts are typical area sources.

#### COMMON SOURCE TYPES

	HC	NO <sub>x</sub>	CO	SO <sub>x</sub>	Part
<b>Point Sources:</b>					
Fossil-fueled Electric Power					
Generating Plants	x	o	x	o	o
Industrial Boilers	o	o	o	o	o
Processing Plants	o	x	x	x	o
<b>Line Sources:</b>					
Highways, Roadways	o	o	o	x	x
Aircraft	x	o	o	x	x
Railroads	x	o	o	o	o
<b>Area Sources:</b>					
Indirect Sources	o	o	o	x	x
Refineries	o	x	x	o	x
Residential Tracts	x	o	x	o	x
Surface Streets (Aggregated)	o	o	o	x	x

o - Primary Emphasis  
x - Secondary Emphasis

As stated earlier, the three most relevant emission species in a transportation analysis are carbon monoxide, reactive hydrocarbons (RHC), and oxides of nitrogen. It is important to examine the behavior of these types of emissions with respect to the operation of road systems. Carbon monoxide and reactive hydrocarbon emissions are related to the engine's air-to-fuel ratio; that is, they decrease as fuel is burned more efficiently and, beyond the point of maximum efficiency, continue to decrease as engine speed increases. Therefore, as delay is reduced and operating speeds increase in a given transportation network, these kinds of emissions are lessened. Oxides of nitrogen, however, behave somewhat differently. NO<sub>x</sub> is formed during high temperature combustion; as the combustion rate (i.e., engine speed) increases, the rate of formation of NO<sub>x</sub> increases slightly. Therefore, improved transportation network speeds result in somewhat higher emission levels of NO<sub>x</sub>. However, since the marginal decreases in hydrocarbon emission rates are much greater than the corresponding changes in NO<sub>x</sub> emission rates, the general conclusion is that higher transportation system speeds are beneficial to air quality.



Higher levels of emissions (tons/day) can be anticipated as vehicle miles traveled (VMT), vehicle hours traveled (VHT) and delay time increase. The horizon year 2000 represents the amount of urbanization for that time period. Tables 2-8A and 2-8B illustrate the emissions levels for 1985 and 2010 as assumed in the 1982 AQMP revision. The emissions reduction between 1980 and 2000 occurs as older more polluting vehicles are replaced by newer cleaner vehicles. Thus, the technological improvements more than offset the growth in VMT.

Emissions from mobile and stationary sources are given in tons of pollutant emitted per day for each of the five species. There is no direct conversion between emissions in tons per day and pollutant concentration in parts per million (ppm). Therefore, emissions cannot be readily compared to the species concentrations required by the National Ambient Air Quality Standards (NAAQS). Nonetheless, the Southern California Association of Governments (SCAG), charged with assisting The South Coast Air Quality Management District in preparing the Air Quality Management Plan (AQMP), was required to estimate levels that must be obtained to meet the NAAQS. In an attempt to relate tons of emissions to pollutant concentrations, computerized air quality models were used. These models predicted that at the emissions levels projected the South Coast Air Basin would not meet the NAAQS by 1987.

TABLE 2-8A  
SUMMARY OF EMISSIONS  
BY MAJOR SOURCE CATEGORIES: 1985 BASE YEAR  
(tons/day)

SOURCE CATEGORY	ROC	NO <sub>x</sub>	SO <sub>x</sub>	CO	PM	PM10
<u>STATIONARY SOURCES</u>						
Fuel Combustion	17	254	18	67	11	10
Waste Burning	1	1	1	4	1	1
Solvent Use	382	-	-	-	1	1
Petroleum Process						
Storage & Transfer	81	10	27	3	4	3
Industrial Processes	24	9	8	6	17	12
Miscellaneous Processes	85	11	2	110	1,514*	652
TOTAL STATIONARY SOURCES	590	285	56	190	1,548	679
<u>MOBILE SOURCES</u>						
On-Road Vehicles	578	620	35	4,752	84	50
Other Mobile Sources	78	135	30	488	13	12
TOTAL MOBILE SOURCES	656	755	65	5,240	97	62
TOTAL	1,246	1,040	121	5,430	1,645	741

\*Includes Paved Road Dust

Source: Path to Clean Air: Policy Proposals for the 1988 Air Quality Management Plan Revision, June 1988.

South Coast Air Quality Management District and Southern California Association of Governments.

TABLE 2-8B  
SUMMARY OF EMISSIONS  
BY MAJOR SOURCE CATEGORIES: 2010 BASE YEAR  
(tons/day)

SOURCE CATEGORY	ROG	NO <sub>x</sub>	SO <sub>x</sub>	CO	PM	PM10
<u>STATIONARY SOURCES</u>						
Fuel Combustion	24	241	31	114	18	15
Waste Burning	1	1	1	5	1	1
Solvent Use	469	-	-	-	1	1
Petroleum Process						
Storage & Transfer	79	7	27	4	5	3
Industrial Processes	29	7	9	3	19	13
Miscellaneous Processes	97	15	3	79	2,254*	973
TOTAL STATIONARY SOURCES	699	271	71	205	2,298	1,006
<u>MOBILE SOURCES</u>						
On-Road Vehicles	326	570	30	3,938	111	56
Other Mobile Sources	129	192	38	781	17	15
TOTAL MOBILE SOURCES	455	762	69	4,719	128	71
TOTAL	1,154	1,033	141	4,924	2,426	1,077

\*Includes Paved Road Dust

Source: Path to Clean Air: Policy Proposals for the 1988 Air Quality Management Plan Revision, June 1988.  
South Coast Air Quality Management District and Southern California Association of Governments.

A comprehensive emergency program has been adopted by the SCAQMD (Regulations VII and XV). This program sets forth actions to be taken by industry, business, commerce, government, and the public to prevent air pollution concentrations from reaching levels which could endanger or cause significant harm to the public, and/or to abate such concentrations should they occur.

In the event of elevated levels of air pollution, the episode program can require substantial reductions in the amount of pollution that may be emitted. In addition to the reductions in emissions, there are also provisions for advising the public to take precautionary measures. Such an advisory includes recommendations to the public to curtail unnecessary physical activities during "episode" conditions and to remain indoors as much as possible.

Episodes occur when the concentration of an air pollutant has reached a level at which a potential health hazard exists. Depending upon the episode level (first, second, or third stage), various segments of the

public can be affected. A first stage episode may affect persons with chronic lung or heart disease, the elderly, the chronically ill and the exercising young. Advanced episodes may cause significant aggravation of symptoms and decreased exercise tolerance in healthy persons.

e. County and Regional Air Resources Management

The management of air resources is dependent on both local and regional activities and controls. The resource itself is clearly regional, since air cannot be confined to the boundaries of any political jurisdiction. For this reason, air quality surveillance and pollution abatement authority must be vested in an areawide agency. However, the generation of air pollution is local in nature and can be substantially affected by local land use and transportation decisions. Following are descriptions of the agencies and plans which comprise the air resources management framework for Orange County and the surrounding region.

1 ) Regional Agencies

In its efforts to improve air quality, the South Coast Air Quality Management District (SCAQMD) has developed the nation's most comprehensive air pollution control program. The District covers California's most populous region - Los Angeles, Orange and Riverside counties, and the non-desert portion of San Bernardino County - 13,350 square miles where approximately 12 million people live and work.

The District traditionally has controlled emissions from stationary sources of air pollution. Senate Bill 151 (Presley) amended the Public Health and Safety Code to provide the District with authority to adopt transportation control measures and indirect source controls consistent with Section 40414 of the Public Health and Safety Code. As part of a multi-faceted control program, SCAQMD develops and enforces rules regulating emissions; prepares and regularly updates the Air Quality Management Plan; maintains a network of air monitoring stations to track pollutant levels throughout the region 24 hours a day; coordinates public outreach; and notifies the public of potential air pollution alerts and the associated health hazards by providing information directly to the public and to the local media on the quality of the ambient air.

SCAG is the Southern California Association of Governments, and it has been working to improve the region since 1965 - planning its growth and development, improving relationships between levels of government, and providing an open forum for cities, counties, and the public. As the name implies, its members are governments: six counties - Los Angeles, Orange, San Bernardino, Ventura, Riverside, and Imperial - and 160 cities. SCAG is designated by state and federal governments as the official planning agency for our area: its staff writes plans for, among other things, transportation systems, air and water quality, housing supply, and growth management.



## 2 ) Air Quality Management Plan

The Federal Clean Air Act, as amended in 1977, requires states to have State Implementation Plans (SIPs) to achieve established air quality goals - the National Ambient Air Quality Standards (NAAQS). The Act requires that urban areas such as the South Coast Air Basin (SCAB) which do not meet these standards for carbon monoxide (CO) and/or photochemical oxidants (ozone, O<sub>3</sub>), implement transportation plans to achieve the standards for these pollutants.

The California Legislature has designated the SCAQMD and SCAG as the agencies responsible for development of the Air Quality Management Plan (AQMP) which would represent the basin's section of the SIP. A Memorandum of Understanding (MOU) between the District and SCAG, allocates to SCAG the responsibility for non-technical strategies in three areas: transportation, energy conservation, and land use. The original AQMP was jointly published in January 1979 by the District and SCAG; the next AQMP revision was prepared by the same agencies in October 1982.

The AQMP, in accordance with the federal guidelines for implementing the Clean Air Act Amendments of 1977, calls for a graduated decrease in air pollution emissions to a level that will permit attainment of the National Ambient Air Quality Standards. Because it is technically difficult to forecast ambient air quality, this analysis was performed on the basis of emission (tons) rather than concentrations (parts per million).

The 1988 AQMP establishes the regional goal of the attainment of the federal clean air standards by the year 2007. In order to make significant progress towards this goal, especially in light of the dramatic growth forecast for the region, tough choices must be made. The regional choices for air quality improvement involve not only the issues of demand management, but even more fundamentally the question of how the region will power its growth machine. The 1988 AQMP process is an attempt to promote ways in which growth can occur, yet provide mitigation for externalities such as traffic congestion and the resultant impact on air quality.

### a ) Control Measures

In order to make significant progress towards the regional goal of attainment by the year 2007, tough control measure choices have been presented. The trade-offs between stationary source controls, area source controls and mobile source controls can only occur if a major commitment is made by local, county and regional governments. The regional choices for air quality improvement involve not only the issues of demand management, but even more fundamentally the issues of fuel and power.

The measures have been divided into three categories: Transportation, Land Use, and Energy Conservation. There are 25 Transportation measures, one major Land Use Measure and three Energy Conservation Measures. Of these measures, Orange County

is currently implementing 15 measures, to some degree, on the County level.

Each measure proposes a set of actions designed to cause a reduction in emissions. The measures are as explicit as possible; although, in many cases, multiple options exist for implementation.

3 ) Regulation XV: Trip Reduction/Indirect Source

Regulation XV was adopted by the Southern California Air Quality Management District on December 11, 1987. This regulation sets forth the actions employers which employ 100 or more persons at any worksite must take to promote employee participation in trip reduction and ridesharing programs. These programs are intended to reduce emissions from vehicles used for commuting between home and the worksite. It is the intent of the District to work with affected employers and local jurisdictions in improving trip reduction activities to encourage small employers to join transportation management organizations, and to evaluate the effectiveness of this regulation two years after it has been fully implemented to insure that it is as effective as possible. The implementation of this regulation began July 1, 1988.

4 ) Orange County Traffic Reduction Incentive Program (TRIP)

Regulation XV permits exemptions where employers are subject to a city or county ordinance requiring employer trip reduction strategies as stringent as those found in Regulation XV. The County of Orange has pursued exemption status for local agencies adopting the Traffic Reduction Incentives Program (TRIP).

The TRIP program was developed to address Orange County traffic problems by reducing congestion and to improve regional air quality. The program encourages a partnership of local governments, landowners, developers, businesses and commuters to develop realistic and achievable strategies for improving traffic congestion and air quality. The TRIP program is intended to be as flexible as possible by offering a list of strategies for employers to choose from to implement the combination best meeting their specific needs.

The objective of the TRIP program is to provide congestion relief measures that will result in equivalent emission reductions as in Regulation XV. The TRIP program would be applied to all employers and employment complexes with 100 employees or more and would utilize a point system. Various point values would be given for carpools, vanpools, public transit, bicycling, walking, alternative work hour programs, living within 5 miles of work and non-peak travel. The employer must achieve an average of 34 points per 100 employees. Employers would be required to submit annual reports demonstrating reasonable efforts to achieve the trip reduction objective.

## 5. Open Space

### a. Introduction

The rich diversity of open space within Orange County is exemplified by sparkling beaches, picturesque harbors, an urban national forest, natural areas sheltering unique wildlife habitats and vegetation, and the aquatic and marine system of marine life refuges and ecological reserves. The role of open space within Orange County is generally:

1. To preserve natural resources, i.e., conserve natural areas, their inhabitants, and their indigenous processes.
2. To productively manage natural resources, e.g., groundwater replenishment along the Santa Ana River corridor.
3. To protect the public from hazardous areas or conditions, i.e., floodplains, areas with unstable soil, and high fire hazard areas.
4. To provide areas for outdoor recreation, e.g., parks, beaches, trails, and areas with notable aesthetic, historic or cultural values.

### b. Open Space/Conservation Program Implementation to Date

The Open Space/Conservation Program was formally adopted in 1972. Efforts towards the preservation of regional open space started in 1897 with the donation of Irvine Park. The continued process of preservation of open space has been enhanced by the efforts of the federal government, the State, the County and special interest groups. Concern and support for a formal program increased as the county experienced rapid urbanization in the 1950s and 1960s. The establishment of the Open Space/Conservation Program identified a systematic analysis of potentially desirable land to be preserved for its regional open space/conservation qualities.

The implementation of the Open Space/Conservation Program to date is depicted by Figure 2. Progress toward the implementation of the program has been very successful. The following discussion identifies program accomplishments to date.

The largest single open space feature in the county is the Cleveland National Forest, established by the federal government in 1908. The 55,000+ forest acres have benefitted significantly from the activities of the County and the National Audubon Society. The Starr Ranch Audubon Sanctuary and (existing and proposed) regional parks have provided buffer lands for the forest.

The combined activity of the State, local agencies and interest groups have established two State parks since 1979. Crystal Cove State Park located along the Irvine Coast is the single largest permanent open space expanse along the County's coast. Chino Hills State Park adjoining San Bernardino and Riverside Counties is an important



addition to the County's open space efforts. It represents a significant large open space area adjacent to the urbanized portion of the county.

Orange County's regional park system has also contributed greatly to the preservation and conservation of open space. The program is countywide in focus serving all the county's citizens. The first major regional parks were Irvine and O'Neill Parks located in the foothills of the Santa Ana Mountains. During the 1960s and 1970s implementation focused upon regional parks in close proximity to the population centers. Examples of this effort may be witnessed by the existence of Mile Square, Craig, Laguna Niguel, Mason, Fairview and Featherly Regional Parks. These parks have done well to preserve open space and to provide regional recreation opportunities.

During the late 1970s and early 1980s the open space program has had increased opportunities in the rural areas. This is a result of few open space opportunities in the urban area and because acquisitions associated with the development process have been concentrated in rural areas. The significant open space additions include: the Arroyo-Trabuco addition to O'Neill Regional Park; the 2,000+ acres added to Caspers Wilderness Park; and Wagon Wheel Regional Park.

The program's future activity will focus primarily in the foothills where proposed regional parks are identified in Whiting Ranch, Limestone Canyon, Peter's Canyon and elsewhere. Coastal open space implementation is expected for Bolsa Chica and the Irvine Coast. Inland, the opportunities are fewer; however, proposed regional parks are identified for Carbon Canyon, Olinda landfill site, Los Alamitos and Seal Beach.

A more complete discussion of open space/conservation implementation is found in Chapter Seven: Open Space Component, "Open Space High Priority Areas".

c. Summary of Inventory Data

The following is an inventory of open space areas in Orange County. Data are presented by Regional Statistical Area (RSA) cross-tabulated by categories such as type of facility or use, property owner, or jurisdiction. (See Chapter One, Map 1-1.) The inventory data describe current (as of December 1983) and proposed open space areas.

Regional recreation facilities distributed by RSA and categorized by county, state and federal lands are shown in Table 2-9. Predominant gross acres of county facilities are concentrated in RSA C and primarily attributable to the existence of Caspers Wilderness Park, O'Neill Regional Park and Wagon Wheel Regional Park. Proposed regional open space acreage found in this RSA is attributable to open space dedications which resulted from development approvals for Whiting Ranch, Plano Trabuco, Glenn Ranch and Robinson Ranch.

TABLE 2-9

REGIONAL OPEN SPACE  
REGIONAL RECREATIONAL FACILITIES (GROSS ACRES)

RSA	REGIONAL NODES <u>1/</u>			FEDERAL LANDS <u>2/</u>			STATE LANDS <u>3/</u>			TOTAL	
	Existing	Proposed	Total	Existing	Proposed	Total	Existing	Proposed	Total	Existing	Proposed
A	208.8	0.0	208.8	0.0	0.0	0.0	0.0	0.0	0.0	208.8	0.0
B	1,106.3	3,532.5	4,638.8	3,585.0	0.0	3,585.0	2,133.0	1,800.0	3,933.0	6,824.3	5,332.5
C	9,696.0	6,791.5	16,487.5	55,284.0	0.0	55,284.0	0.0	0.0	0.0	64,980.0	6,791.5
D	784.9	8,841.0	9,625.9	0.0	0.0	0.0	2,962.9	0.0	2,962.9	3,747.8	8,841.0
E	0.0	6,310.0	6,310.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6,310.0
F	1,057.6	99.0	1,156.6	0.0	0.0	0.0	232.7	0.0	232.7	1,290.3	99.0
G	268.2	921.8	1,190.0	0.0	0.0	0.0	0.0	0.0	0.0	268.2	921.8
H	3.3	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0
I	786.7	767.5	1,554.2	0.0	0.0	0.0	2,770.3	830.0	3,600.3	3,557.0	1,597.5
J	0.0	1,100.0	1,100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,100.0
Total	13,911.8	28,363.3	42,275.1	58,869.0	0.0	58,869.0	8,098.9	2,680.0	10,728.9	80,879.7	30,993.3

## Notes:

1. Regional nodes include regional harbors, beaches and parks, and regionally designated open space areas within Planned Communities.
2. Federal lands include the Cleveland National Forest. This category does not include military land.
3. State lands include state beaches, parks, marshlands, and an ecological preserve.

## Sources:

Orange County, EMA (1984)  
 State Department of Fish and Game  
 University of California (September 1980)

Coastal resources (beaches, aquatic parks, harbors) within County regional nodes are found in RSAs D, F, and I. The total approximate gross acreage is 783 acres with 544 acres (69%) located in the South County coastal area. Dana Point Harbor is the largest South County coastal facility encompassing approximately 453 acres.

The Cleveland National Forest, a resource within the purview of the National Forest Service, is the largest open space area in the county (58,869 acres in RSAs B and C). Similarly, Chino Hills State Park represents the largest State-owned, inland open space area. All other State-owned open space areas are along the coast (RSAs D, F, I) and provide over 5,965 acres of beaches, parks, and ecological reserves. State-proposed open space expansion areas include Bolsa Chica and Chino Hills State Park (2,680 acres).

Open space provided by County local parks is located within the suburban and urban setting in contrast to open space provided by County regional nodes, State lands, and the Cleveland National Forest. See Table 2-10. Local (non-regional) open space areas are largely found in South County (RSAs C and D) primarily in the communities of Mission Viejo, Lake Forest/El Toro and Laguna Niguel. Overall, 63% of the total gross local park acres is actually used for local parks in accordance with the Local Park Code.

"Other Open Space" category (Table 2-11) shows the greatest concentration of existing open space in RSA C (8,238 gross acres). The majority of the proposed open space is also found in RSA C, located in the Planned Communities of Coto de Caza, Robinson Ranch, Glenn Ranch and Plano-Trabuco. Private in-holdings within the Cleveland National Forest contribute substantially to other open space category acreage in RSA B (25% of the RSA total) as does open space acreage in the Anaheim Hills area (28%).

The total number of existing and proposed gross open space acres were determined for each RSA. See Table 2-12. RSAs B and C have the greatest number of existing gross open space acreage (weighted by the Cleveland National Forest) followed by the coastal areas of RSAs D, I and F. RSAs C, D, E and B have the greatest amount of proposed acreage. Conditions of development approval for Planned Communities such as Glenn Ranch and Coto de Caza largely comprise the open space acreage for RSA C. Chino Hills State Park constitutes the proposed acreage in RSA B. The Bolsa Chica State Ecological Preserve and related Bolsa Chica open space uses are the primary contributors of proposed acreage in RSA I.



TABLE 2-10

## NON-REGIONAL OPEN SPACE

UNINCORPORATED AREA  
1983NON-REGIONAL OPEN SPACE<sup>1/</sup>Gross Acres  
(Net Acres)

RSA	EXISTING <sup>2/</sup>		PROPOSED <sup>3/</sup>		TOTAL	
	Gross Ac.	Net Ac.	Gross Ac.	Net Ac.	Gross Ac.	Net Ac.
A	0.0	0.0	0.0	0.0	0.0	0.0
B	2.2	2.2	0.0	0.0	2.2	2.2
C	497.5	347.5	81.2	14.8	578.7	362.3
D	208.6	91.3	53.9	5.1	262.5	96.4
E	0.0	0.0	0.0	0.0	0.0	0.0
F	0.0	0.0	0.0	0.0	0.0	0.0
G	7.6	6.9	4.9	4.9	12.5	11.8
H	0.0	0.0	0.0	0.0	0.0	0.0
I	0.0	0.0	0.0	0.0	0.0	0.0
J	9.8	9.3	0.0	0.0	9.8	9.3
Total	725.7	457.2	140.0	24.8	865.7	482.0

## Notes:

<sup>1/</sup> This is local park acreage for the unincorporated County only. Net acreage denotes useable parkland creditable for Local Park Code compliance.

<sup>2/</sup> Existing local park acres includes parks which are: (a) developed, or (b) not developed but accepted by the County in response to an irrevocable offer.

<sup>3/</sup> Proposed local park acres includes parks which have been irrevocably offered but not accepted by the County.

Source:

Orange County, EMA

TABLE 2-11

## OTHER OPEN SPACE

UNINCORPORATED AREA  
1983

OTHER OPEN SPACE Gross Acres			
RSA	Existing <sup>1/</sup>	Proposed <sup>2/</sup>	Total
A	267.3	0.0	267.3
B	3,390.1	0.0	3,390.1
C	8,238.1	3,184.8	11,423.0
D	434.3	79.8	514.1
E	271.5	0.0	271.5
F	843.3	0.0	843.3
G	661.0	4.9	665.9
H	378.9	0.0	378.9
I	646.1	0.0	646.1
J	247.4	0.0	247.4
Total	15,378.0	3,269.5	18,647.6

## Notes:

<sup>1/</sup> "Other" existing open space includes: areas such as greenbelts and open space median strips owned by the County; creeks, streams and rivers; residual areas; areas within the Cleveland National Forest which are private in-holdings; or areas identified in Planned Community conditions of approval requiring acreage dedications, or designated on the Planned Community map or in the Planned Community text.

<sup>2/</sup> "Other" proposed open space includes: irrevocable offers; or areas identified in Planned Community conditions of approval requiring acreage dedications, or designated on the Planned Community map or in the Planned Community text.

## Sources:

Orange County, EMA  
Orange County, GSA

d. Conclusion

A consistent open space pattern finds County regional and State open space areas located along beaches or shoreline (RSAs D, F, and I); whereas, local parks are located in South County (RSAs C and D) to serve communities and neighborhoods. Sometimes regional open space is proposed as part of new development (e.g., Whiting Ranch). However, regional open space need not be formally proposed and can be independent of development proposals (e.g., Weir Canyon, Limestone Canyon, Peters Canyon).

Table 2-12 shows a total of 131,386.3 gross acres of open space from all sources (i.e., regional, local, State and federal lands). The tabular data presented does not distinguish between open space acquired through fee dedication and open space acquired through easement dedication. (See Chapter Seven: Open Space Component, Appendix 1, Open Space Dedication Definitions.)



TABLE 2-12

## TOTAL OPEN SPACE - ALL SOURCES

RSA	TOTAL OPEN SPACE Gross Acres		
	Existing	Proposed	Total
A	476.1	0.0	476.1
B	10,216.7	5,332.5	15,549.1
C	73,715.6	10,057.5	83,773.2
D	4,390.7	8,974.7	13,365.4
E	271.5	6,310.0	6,581.5
F	2,133.6	99.0	2,232.6
G	936.8	931.6	1,868.4
H	382.2	0.0	382.2
I	4,203.1	1,597.5	5,800.6
J	257.2	1,100.0	1,357.2
TOTAL	96,983.4	34,402.8	131,386.3

Note: This table does not include the countywide 250 linear mile riding and hiking trail network.

Sources: Tables 2-9, 2-10 and 2-11.

## 6. Cultural-Historic Resources

### a. Overview

Cultural-historic resources are defined as buildings, structures, objects, sites, and districts of significance in history, archaeology, architectural history, and culture. In Orange County, resources of paleontological significance are included in the cultural resource management program. The preservation, management, study, and use of these resources is important for a number of reasons. We seek to preserve because these resources are all that physically link us to our past. They provide a frame of reference, both psychologically and historically, for a society rapidly moving into a technological future. Cultural-historic resources are an educational tool for learning about the events, persons, conditions, and lessons of the past. Many such resources have high scientific and aesthetic values, as well as being economic assets to a community for their potential reuse, stimulating jobs, and attracting tenants or tourists.

### b. Background

Orange County has a history and prehistory that, despite the rapid change of the recent past, has left us a rich heritage of valuable cultural resources. The ancient geological formations have yielded and still contain paleontological resources of major significance. The Los Coyotes area of North County and the Pectin Reef area of South County are among the most prolific and scientifically valuable fossil deposits in the nation. Evidence of human occupation in Orange County dates from 17,000 B.C. Over 1,000 archaeological sites are registered in Orange County. They contain artifacts and features of value in reconstructing cultural patterns of prehistoric life.

In 1542, Juan Rodriguez Cabrillo sailed along the coast of future Orange County, but apparently contact with native inhabitants by Europeans was not initiated until over two centuries later when such prominent figures as Father Serra and Gaspar de Portola participated in the initial exploration and settlement. The Mission San Juan Capistrano, established in 1776, is a National Historic Landmark and numerous adobe buildings from the late 18th and early 19th centuries still remain. The Rancho Era of this time yielded to the American Era of the second half of the 19th century as ranching continued, but the economy and population diversified and towns were settled. Many of the cultural resources remaining today date from the first land development boom of the late 1880s when the architectural fashion was Victorian.

The 20th century has seen further rapid growth with citrus and other agricultural crops, business, oil, the proliferation of the automobile, expanding commerce and light industries. Remaining are the scattered rural ranch houses and associated features, and commercial centers and residential neighborhoods of varying styles dating usually from periods of prosperity such as the mid-1920s.

c. Location/Sensitivity

Important physical remnants of our cultural heritage are present throughout Orange County. Resources significant in history or architectural history are logically concentrated in the areas where settlement and growth occurred during the historical era, roughly from the late 18th century through World War II. With the exception of San Juan Capistrano and smaller South County communities such as Laguna Beach and San Clemente, most pre-World War II development of Orange County occurred in North County towns and cities.

Sub-surface resources such as archaeological and paleontological sites are abundant in South County, along the coast and in creek areas. Several factors contribute to this condition. Certain geologic formations, due to their nature and age, are fossil-bearing or nonfossil-bearing. Fossil-bearing formations are prevalent in South County. Prehistoric human occupation was most prevalent in areas where food, water, and shelter were available. Perhaps the most important factor in the presence or absence of cultural resources is the subsequent activity in the area which may have impacted the resource. Activities such as floods, erosion, grading, demolitions, etc., if they occurred since the time when the cultural resource came into existence, may have destroyed or damaged the site. This is actually a perpetual, sequential process and explains in part why the areas of pre-World War II development in the county contain a greater number of significant structures and fewer archaeological sites.

Although identifying large, broad areas of resource trends is historically interesting and academically valuable, greater specificity is needed for planning purposes and cultural resource management. Areas and levels of sensitivity have been developed for archaeology and paleontology by professionals in these fields. These resources sensitive areas are depicted in the County Master Environmental Assessment (MEA) Sensitivity Maps. This computerized mapping system is a valuable tool in the planning process, primarily as it relates to environmental issues and to the cultural resource management programs. They are based for paleontology on known outcrops or sites and on the underlying geological formations, which have a strong predictive validity. For archaeology, numerous factors are considered including known sites, topography, proximity to food and water, etc. MEA maps for archaeology show sensitivity levels only. No MEA Sensitivity Maps exist for historical sites. Further survey data are needed.

For paleontology, registered sites often are simply small outcroppings visible on the surface or sites encountered during grading. While the sites are important indicators, it is the geological formations, of which these sites are a part, that are most important for large planning purposes since the formations may contain more fossils. Maps for paleontology show some of the best known sites as well as sensitivity levels which are predicated primarily on the underlying geological formations. (See Map 2-13.) Paleontological sites are not



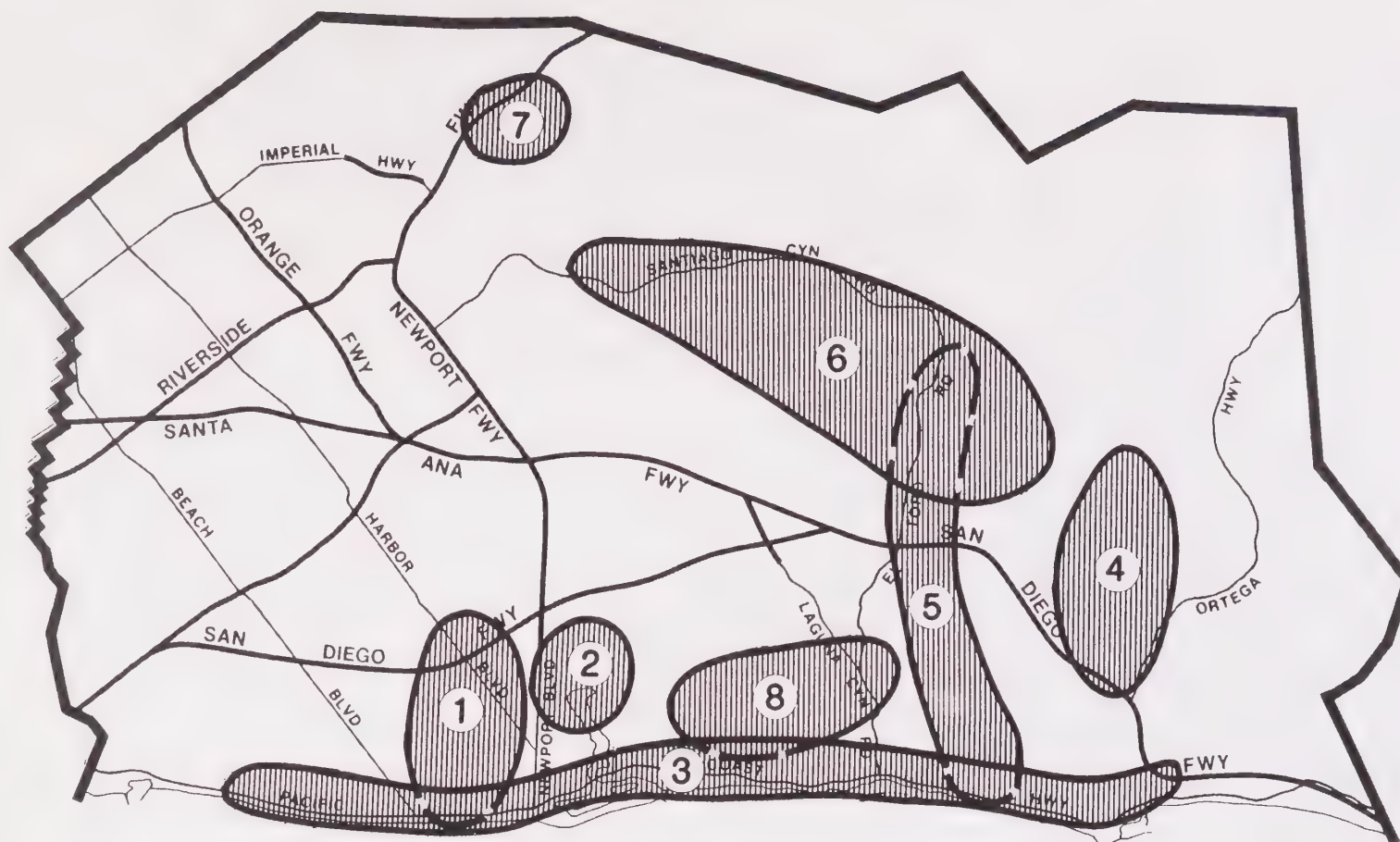
6. Plano Trabuco - Southern Santa Ana Mountains
7. Northern Santa Ana Mountains
8. Yorba Linda - Eastern Puente Hills
9. Coyote Hills

MAP  
2-13

considered as great a planning constraint as archaeology or history, and are also not considered as sensitive to vandalism.

For archaeology, information regarding location of sites is considered very sensitive. "Pot hunting" and other deliberately destructive acts are a problem. Over 1,000 archaeologic sites have been registered in Orange County at this time. The location of many are commonly known, others are protected on private property, and still others have been destroyed. Therefore, specific site locations are not depicted in order to protect them. (See Map 2-14.)

For history, far less field survey information is available. Although several Orange County cities have been systematically surveyed, additional information is needed for unincorporated areas. In addition, all of the historical registration programs are passive and hence not at all comprehensive. Map 2-15 shows some of the most important historic sites but should not be construed as thorough because a very large portion of Orange County has not yet been field surveyed.



1. Lower Santa Ana River Mouth
2. Newport Bay Area
3. Coastal Area
4. Trabuco Area

5. Aliso Creek Area
6. Foothill Area
7. Upper Santa Ana River/Weir Canyon Area
8. Coastal Hills Area

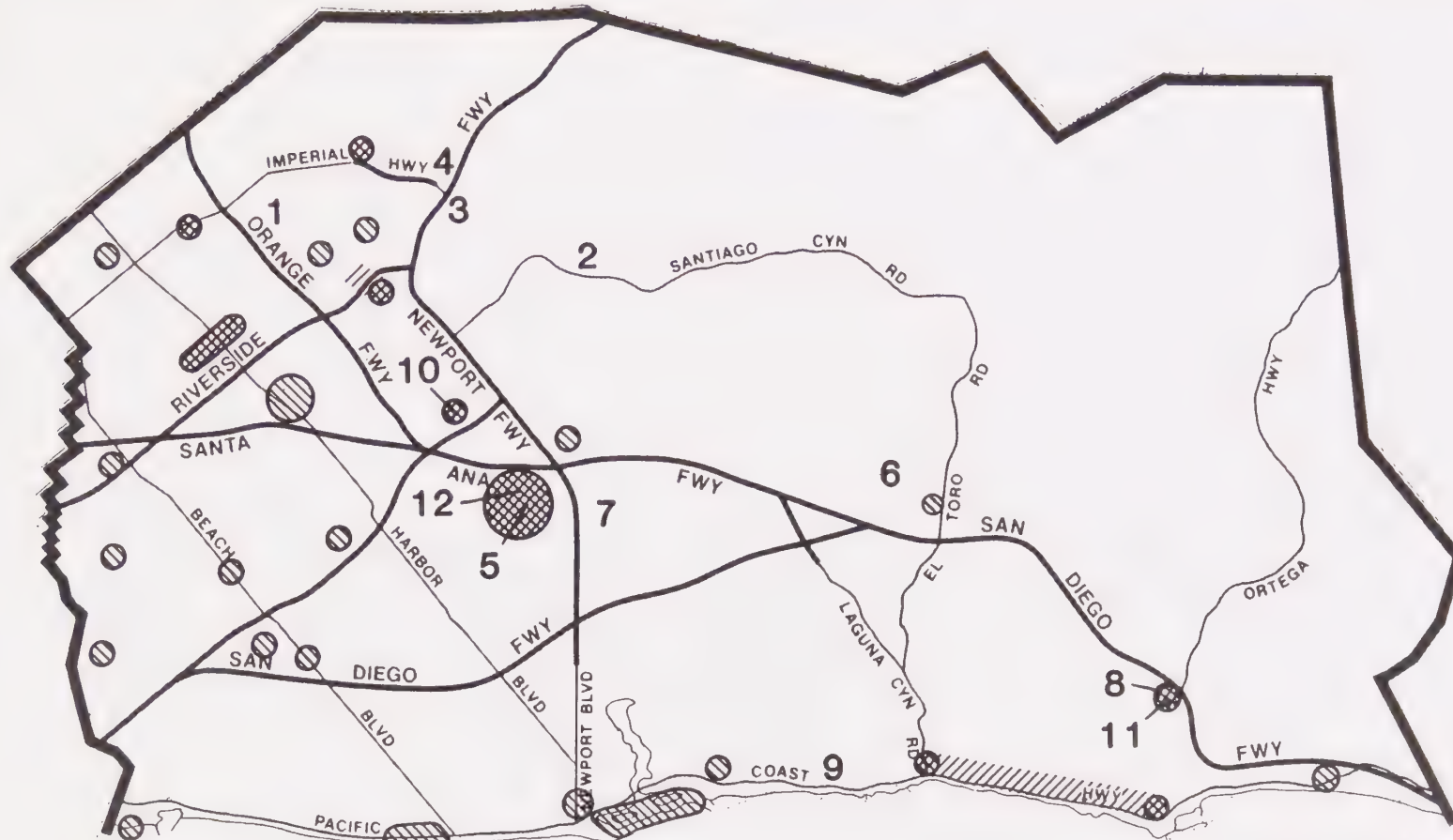
## Prehistoric Archaeology--General Areas of Sensitivity

Source: Orange County  
(Not A Plan)



MAP  
2-14





**Communities which have conducted  
Historic Preservation Surveys**

- San Juan Capistrano
- Laguna Beach (Including unincorporated  
between Laguna Beach and Dana Point)
- Dana Point
- Yorba Linda
- Brea
- Orange
- Santa Ana
- Fullerton
- Olive (Including unincorporated areas north  
of the 91 Freeway)



**Pre-1940 Population Centers  
(generalized locations)**

**Note:** These areas contain concentrations of pre 1940 buildings and structures even though National Register eligible buildings exist scattered throughout the County. As of 12/83 there were 53 Orange County properties on the National Register of Historic Places.

### County Owned Historic Sites

1. Key Ranch
2. Irvine Park
3. Peralta Adobe
4. Yorba Cemetery
5. Old County Courthouse
6. Heritage Hill

### National Historic Landmarks

7. Blimp Hangars
8. Mission San Juan Capistrano

### National Register Historic Districts

9. Crystal Cove
10. Orange Plaza (Orange)
11. Los Rios (San Juan Capistrano)
12. North Park (Santa Ana)

## Orange County's Historical Areas

Source: Orange County

(Not A Plan)



MAP  
2-15



## CHAPTER THREE: CONSTRAINTS AND OPPORTUNITIES

### A. Overview

This section identifies existing and potential constraints to and opportunities for satisfying the projected resource demands for Orange County presented in the previous chapter. While these constraints do not always represent absolute barriers, they may inhibit the timely achievement of key resource supply or conservation objectives. These constraints and opportunities have been categorized below into four categories: environmental, governmental, economic and market, and legal. The implementation policies and programs contained in Chapters Four through Eight (the "Components") are intended to eliminate these constraints and utilize the identified resource opportunities.

### B. Constraints

#### 1. Environmental Constraints

- a. Air Quality: One of the most confining of all constraints to meeting future resource demands are the statutory requirements protecting air quality and minimizing the impact of air pollution on human health. In Southern California, the local air quality district adds more stringent limitations because of the regional topography and meteorology which intensify pollution problems. Air quality standards limit the choice of energy sources for power plants and other energy production activities. The use of coal, for example, for power generation is virtually eliminated by air quality standards.
- b. Local Water Availability: Water supply has always been a critical issue for Southern California, with local sources of water providing less than half of the area's water needs. Existing water supply limitations and the anticipated loss of imported water from other regions (e.g., Colorado River entitlement) may constrain the production and utilization (e.g., petroleum and mineral extraction) of other resources.
- c. Water Quality: In the Orange County region, the protection of water quality is a major concern. The need to maintain safe water quality may constrain the development of energy resources from methane (landfills) and geothermal sources. At a minimum, water quality concerns will need to be considered during the process of developing these resources and water intensive resources such as agriculture.
- d. Availability of Local Resources: The limited availability of local resources is the basis for many resource planning activities contained in the components. This condition must be considered as a constraint for the County. Aside from its diminishing supply of petroleum resources, the County lacks enough other natural resources such as water to meet its own needs. The direct



implications of this deficiency of resources is that the County has become more dependent on imported resources and, as a consequence, is increasingly vulnerable to actions and policies which it cannot directly influence (e.g., imported oil supply allocations).

## 2. Governmental Constraints

- a. Fiscal Constraints: The loss of revenue resulting from Proposition 13 and other factors, and rising public service costs due to growth and inflation, will continue to exist in Orange County. While the County is in a relatively better fiscal situation than most other counties in the State, the projected costs of serving future development are not balanced with revenues. Certain public services may have to be curtailed or eliminated in the future because of budget shortfalls. Fiscal resources for future resource management activities such as cultural-historic resources programs and resource inventory and mapping efforts could be significantly impaired. Thus, many innovative Resources Element implementation programs may be limited by the County's future fiscal status.
- b. Competing Objective and Priorities: Competing public needs can result in conflicting priorities and programs. An issue of increasing public concern which may constrain resource conservation programs is the high cost of housing. For example, since most of the costs associated with alternative energy systems and other conservation measures are upfront capital and installation costs, they may increase the costs of construction and, subsequently, the price of housing. Therefore, the need to achieve affordable housing objectives could constrain efforts to reduce future resource demands.

## 3. Economic and Market Constraints

Resource conservation programs, like most other investments, are extremely sensitive to interest rate levels. The finance markets, however, are experiencing difficult times. The availability of a steady supply of credit at a reasonable interest rate is necessary to supplement existing utility and government financing programs for energy, water and other conservation measures and, consequently, achieve resource conservation objectives.

## 4. Legal Constraints

While the County has considerable control of land use in the unincorporated areas, there are certain limits to stringent regulatory action by the County with respect to resource conservation. Many conservation mandates infringe upon the rights of individuals or firms. Actions requiring mandatory compliance (e.g., open space dedication) must be supported by identified public benefit (e.g., Resources Element) or urgency situation. Although these actions have usually been upheld as valid exercises of police power, there are

limits to the enforcement of resource conservation measures. A case in point is the regulatory limits of a County action to reduce water demand through mandatory water conservation. Water conservation would produce significant savings for Orange County yet the County has little authority over the water districts which operate in the jurisdiction. Aside from an ordinance prohibiting the waste of water (e.g., lawn irrigation which spills into the street) and building and land use regulations which reduce water consumption, the County cannot regulate water use because the local districts are established by State legislation.

## C. Opportunities

### 1. Environmental Opportunities

- a. Regional and State Resources: In most cases where the County is deficient in local resource supplies, abundant supplies exist in the region or elsewhere in the State. A good example of such an instance is Statewide water supplies. California has a significant amount of high quality water, primarily in the northern one-third of the State. The continued and potentially expanded access to these supplies represents a key opportunity to meeting Orange County's long-term water resource needs.
- b. Amount of Undeveloped Land: The amount of undeveloped land in Orange County, particularly in the unincorporated area, provides a unique opportunity to consider and address resource concerns through innovative land use planning. Although significant portions of the undeveloped area are already planned for urban land uses, the existing land use plans provide for sound resource management as these areas develop.

### 2. Governmental Opportunities

- a. Balanced Community Objectives: The planned community concept embraced by Orange County encourages the development of balanced land use plans in the unincorporated area. Such balanced land uses serve to address concerns in the areas of air quality and energy conservation and promote the efficient use of other resources (e.g., water).
- b. Orange County Government: Orange County government has historically encouraged the conservation of resources through both financial support and regulatory actions. The County, however, has also promoted and supported the involvement of private and community organizations in the management of resources. This is especially true in the area of historic resources where the efforts of private and non-profit organizations compliment and enhance County programs. It is such support of private efforts that fosters meaningful and efficient resource management which, in most instances, exceeds the capabilities of local government.

### 3. Economic and Market Opportunities

The existence of large-scale landholdings in the southern portion of the County has facilitated innovative land use planning in Orange County. Further, the investment potential of the area and the prudent financial practices of the development industry have allowed for the provision of amenities in new developments in excess of what is found in comparable developments in other counties. These amenities and innovative planning practices have served to conserve and preserve the natural features and resources of Orange County such as creek corridors and ridgelines.

### 4. Legal Opportunities

The County has considerable flexibility to provide incentives for resource conservation efforts provided that no threat to the public or safety results from its actions. This flexibility, coupled with increasing tax incentives for historic reservation and other conservation activities, can create a positive environment for resource management efforts, both public and private.



## CHAPTER FOUR: NATURAL RESOURCES COMPONENT

### A. Overview

Orange County has many natural resources, many scenic areas including ridgelines and hillsides, a pleasant climate, farm lands, native vegetation and wildlife, and mineral resources. The Natural Resources Component contains policies and programs which are designed to protect and conserve these areas not only because they have economic value, but also because they are necessary to sustain the quality of life in Orange County.

As used in this component, conservation is the planned management, preservation and wise utilization of natural resources. Its objective is to prevent the wasteful exploration or destruction of natural resources. For over 100 years, conservation activities have focused on major rural natural resources, such as redwood forests, and areas of unique scenic quality. In the past decade, however, conservation has become a major concern in urban areas, including Orange County.

This component provides a basis for programs which serve to implement natural resource conservation goals and policies, and establish a framework for additional inventory and resource planning efforts. The principal natural resource concerns addressed in this component of the Resources Element are: 1) agricultural resources, 2) mineral resources, 3) wildlife and vegetation, and 4) landforms. Coastal resource (e.g., wetlands) policies and plans are contained in the Local Coastal Programs for each specific coastal area in Orange County.

### B. Goals and Objectives

Goal 1: Protect wildlife and vegetation resources and promote development that preserves these resources.

Objective 1: To prevent the elimination of significant wildlife and vegetation through resource inventory and management strategies.

Goal 2: Promote the wise management of agricultural and mineral resources in order to protect these resources for existing and future needs.

Objective 2.1: Reduce dependence on imported resources through sound management of local mineral lands.

Objective 2.2: Enhance the conservation of agricultural resources through sound management of local agricultural lands.

Goal 3: Manage and utilize wisely the County's landform resources.

Objective 3: Minimize to the extent feasible the disruption of significant natural landforms in Orange County.

C. Policies

1. Wildlife and vegetation: To identify and preserve the significant wildlife and vegetation habitats of the County.
2. Agriculture: To encourage to the extent feasible the preservation and utilization of agricultural resources as a natural resource and economic asset.
3. Mineral resources: To ensure the efficient use of all mineral lands consistent with sound resource management practices.
4. Mineral extraction: To ensure opportunities for the extraction of minerals in the County and to protect the environment during and after these minerals are being extracted.
5. Landforms: To protect the unique variety of significant landforms in Orange County through environmental review procedures and community and corridor planning activities.

#### D. Implementation Programs

The Natural Resources Component is closely related to the Energy Resources, Water Resources and Open Space Components contained in this element. An important relationship exists between the conservation of energy and water resources and the efforts to reduce air pollution. The conservation and protection of natural resources has a direct effect upon the open space pattern in Orange County. Because of the interrelationships, the implementation programs found in this component are intended to complement other County resource management policies and programs relating to unique and vital air and land resources. Taken as a whole, the implementation programs within this component and other Resources Element components provide a comprehensive resource management strategy for Orange County.

##### 1. Master Environmental Assessment (MEA)

- a. Action: Maintain and update the inventory of wildlife and vegetation resources, as well as other significant natural resources (i.e., mineral, air, agricultural, landforms). Apply mitigations on projects to reduce or eliminate impacts through the use of MEA. Evaluate the expansion of MEA functions through the establishment of support systems (i.e., Block and Module Grid) to further provide methods to preserve and protect the County's critical biological habitats.
- b. Discussion: The MEA provides a resource data base by which to evaluate the impact of development proposals on the natural environment. Through the MEA, the impact of development trends on significant habitat and resource areas can be identified and mitigated. In addition, the MEA will continually reinforce the intent and focus of the Resources Element's implementation programs.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds: County General Fund



2. Surface Mining and Reclamation Act (SMARA) Implementation

- a. Action: Implementation of SMARA through policy, regulatory, and administrative action.
- b. Discussion: SMARA, enacted in 1975 by the State of California, provides for mineral resource management activities at the local level. The act establishes mining operation and reclamation requirements and a statewide resource inventory and classification process which is described in detail in Chapter Two (characteristics of existing mineral resources). Implementation of SMARA promotes both the conservation and sensitive development of mineral resources, particularly sand and gravel resources, within Orange County.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agencies: 1) Environmental Management Agency  
2) State Department of Conservation
- f. Source of Funds: 1) County General Fund (including development fees)  
2) State of California

3. Agricultural Preservation Program

- a. Action: Evaluate the establishment of an Agricultural Preservation Program to mitigate the long-term impact of agricultural preserve contract cancellations and to provide economic and technical assistance to County agricultural activities. Specifically, the program would establish a trust which could be used for grants, loans, research, and other appropriate items related to agricultural resources. The trust would be funded by contributions from agricultural preserve contract cancellation proponents. Tentatively, the proposed preservation program would require between \$25 to \$30 per acre of agricultural preserve cancelled. This trust would be augmented by any available Federal and State assistance.
- b. Discussion: The proposed Agricultural Preservation Program provides an excellent mitigation to the adverse impact of agricultural preserve contract cancellations upon County agricultural activities. In addition, one of the required findings for cancellation approval is that the cancellation is not inconsistent with the purposes of the Williamson Act. Proponent contributions to an agricultural preservation program has clearly assisted in supporting this finding on recent cancellations.
- c. New or Existing Program: New
- d. Implementation Schedule: Commence with adoption of Resources Element.
- e. Responsible Agencies:
  - 1. Establishing Program: EMA, County Agricultural Commissioner, State Dept. of Conservation, Federal Soil Conservation Service, Farm Bureau.
  - 2. Program Implementation: EMA; or committee with landowner, County and farming interest representation.
- f. Source of Funds:
  - 1) Landowner Fees
  - 2) State and Federal Funds

4. Agricultural Preserve Management

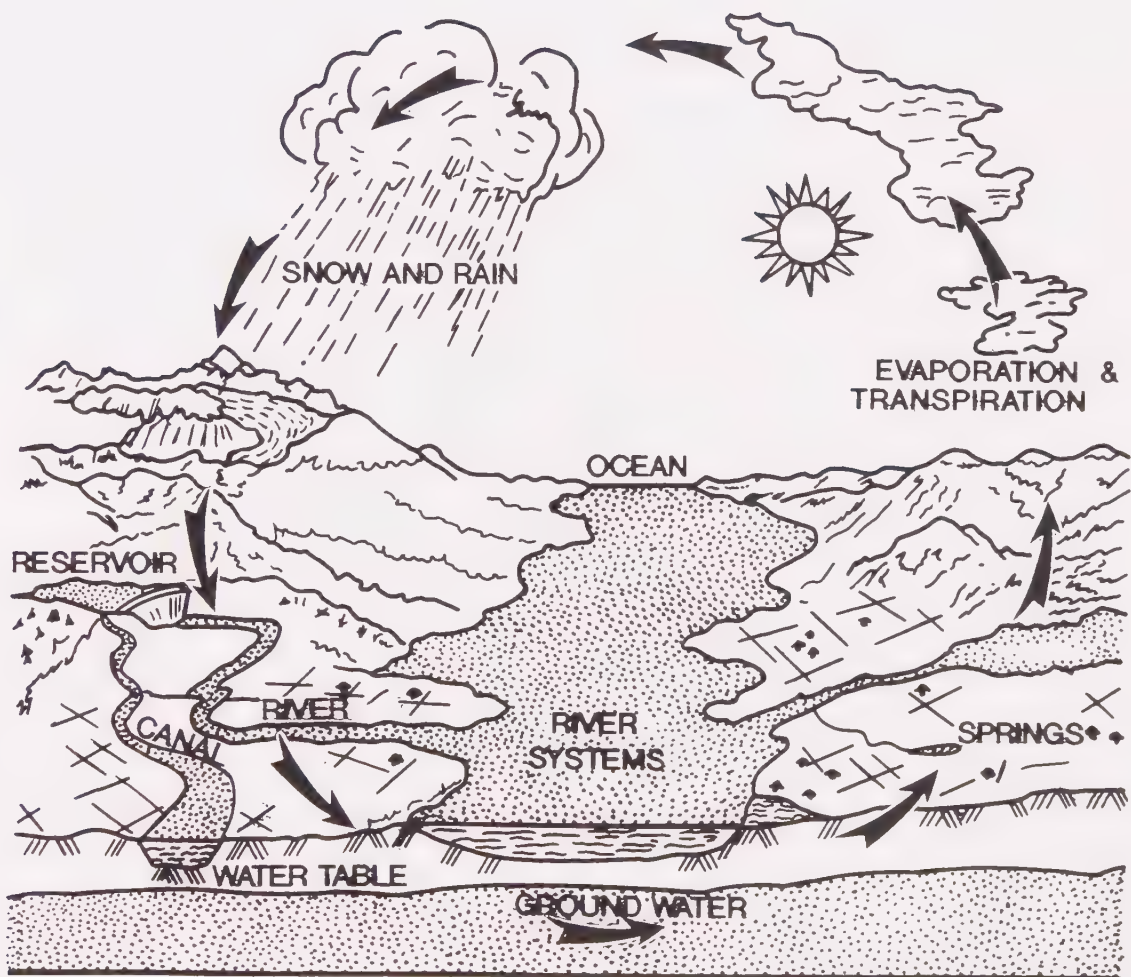
- a. Action: Continue maintenance of existing agricultural preserve contracts between landowners and the County of Orange.
- b. Discussion: As discussed in Chapter Two (agricultural resources), a substantial amount of land within Orange County is in agricultural preserve status. The amount of land under contract, however, will continue to decrease in the future because of non-renewal actions by landowners and city annexations. Unless there is a policy change as a result of the study of agricultural preserves required by the County Housing Element or other actions (e.g., to provide surplus land for housing or other needs), this program focuses on the maintenance of existing agricultural preserve contracts.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds: County General Fund



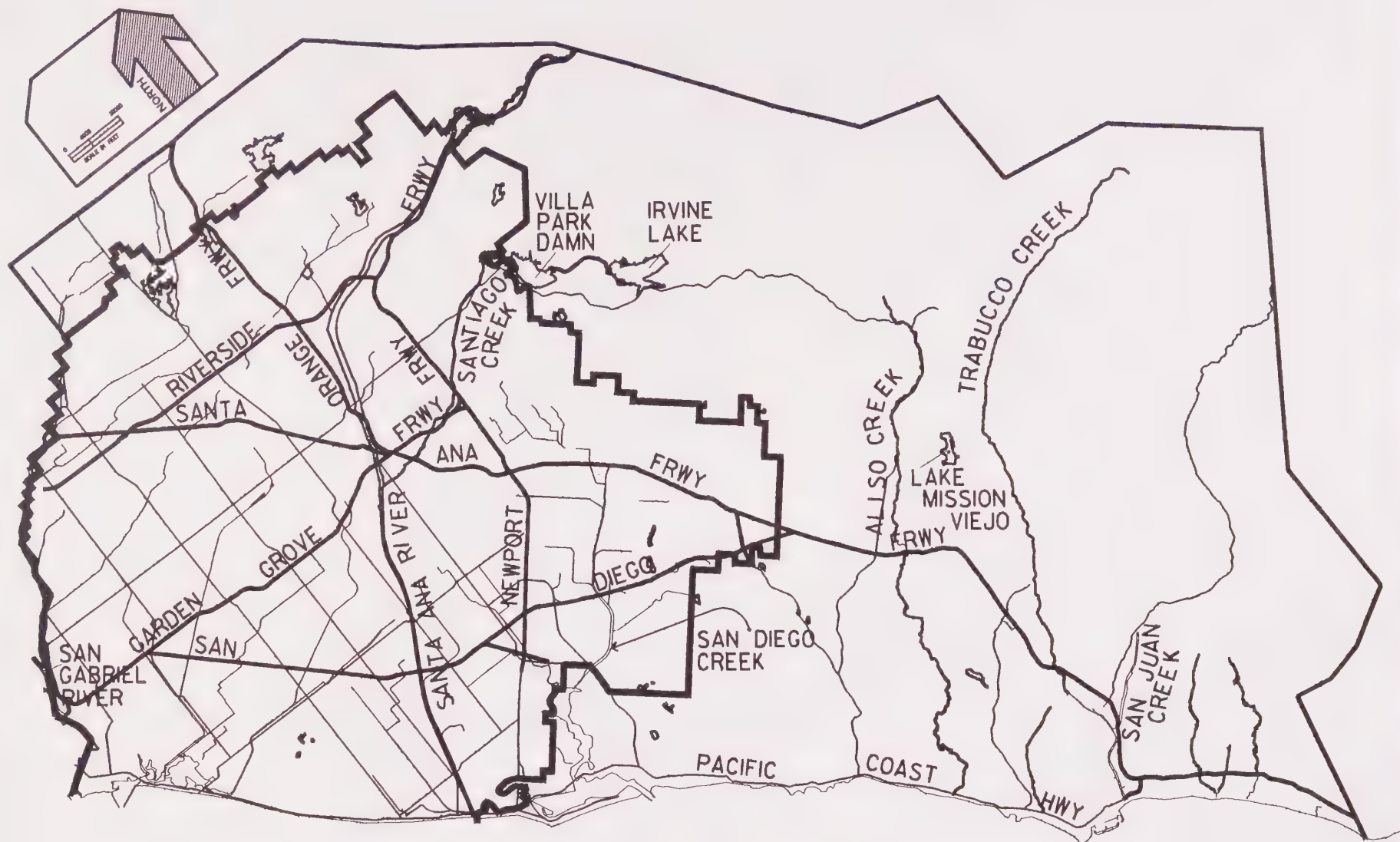
5. Oak Resources Management Program

- a. Action: Evaluate a resources management program for the preservation and maintenance of valuable oak woodland resources in Orange County.
- b. Discussion: Native oaks constitute a significant natural resource in Orange County. Significant commitment has been made towards preserving valuable oak woodland areas through regional park and open space acquisitions. This program involves the examination of additional mechanisms to preserve and maintain oak resources.
- c. New or Existing program: New. Integrate existing activities.
- d. Implementation Schedule: Report to Board of Supervisors, December 1984.
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds: 1) Harbors, Beaches and Parks District  
2) County General Fund





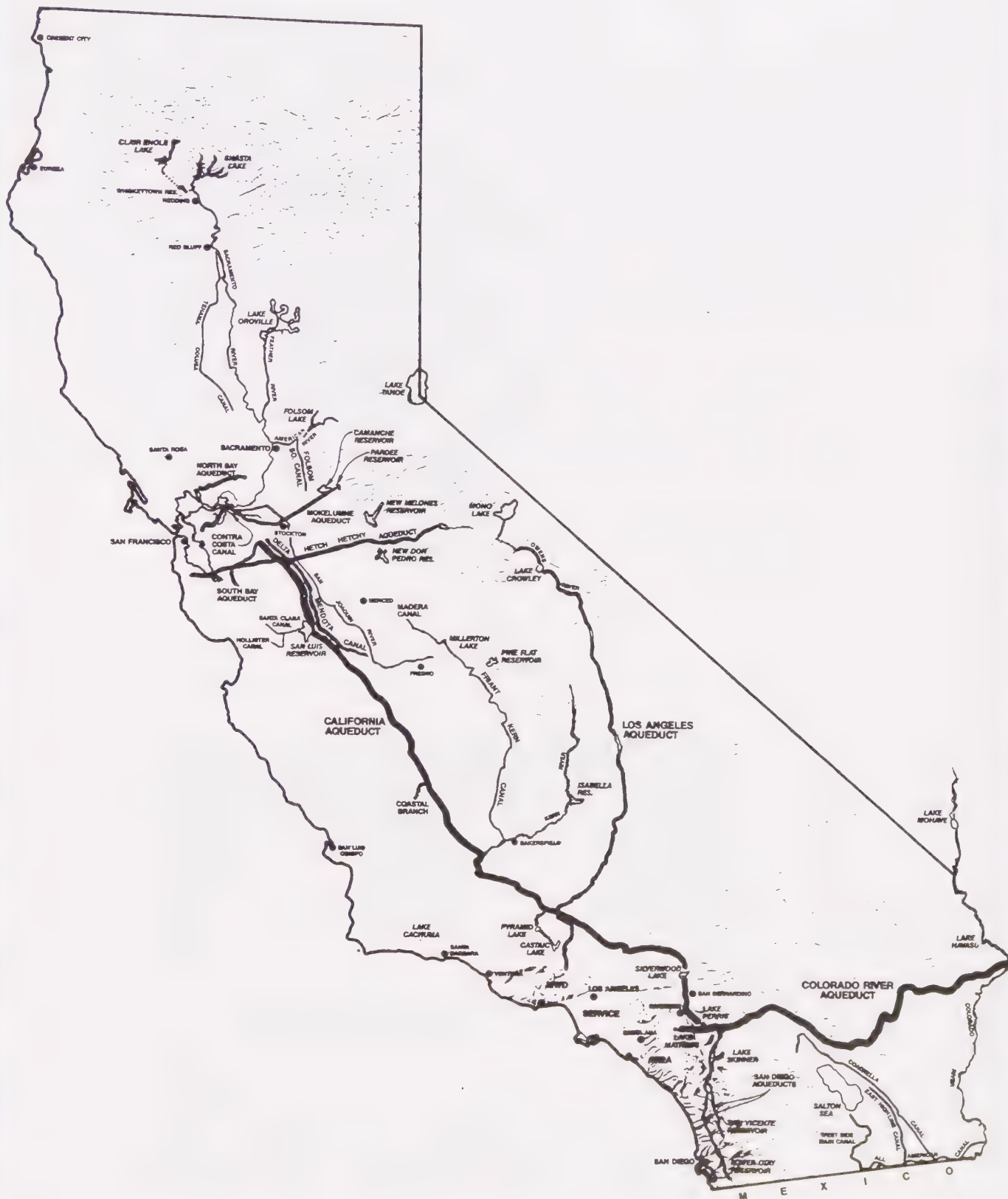


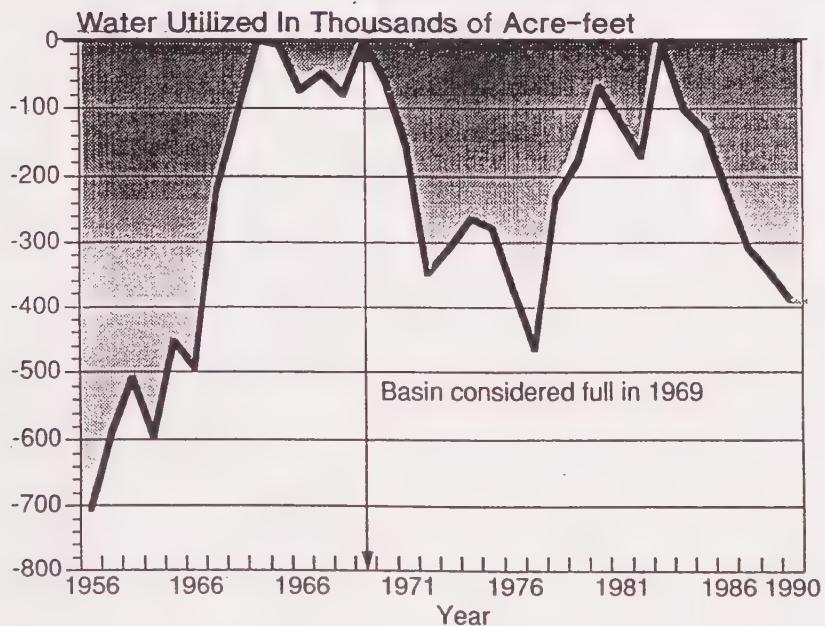
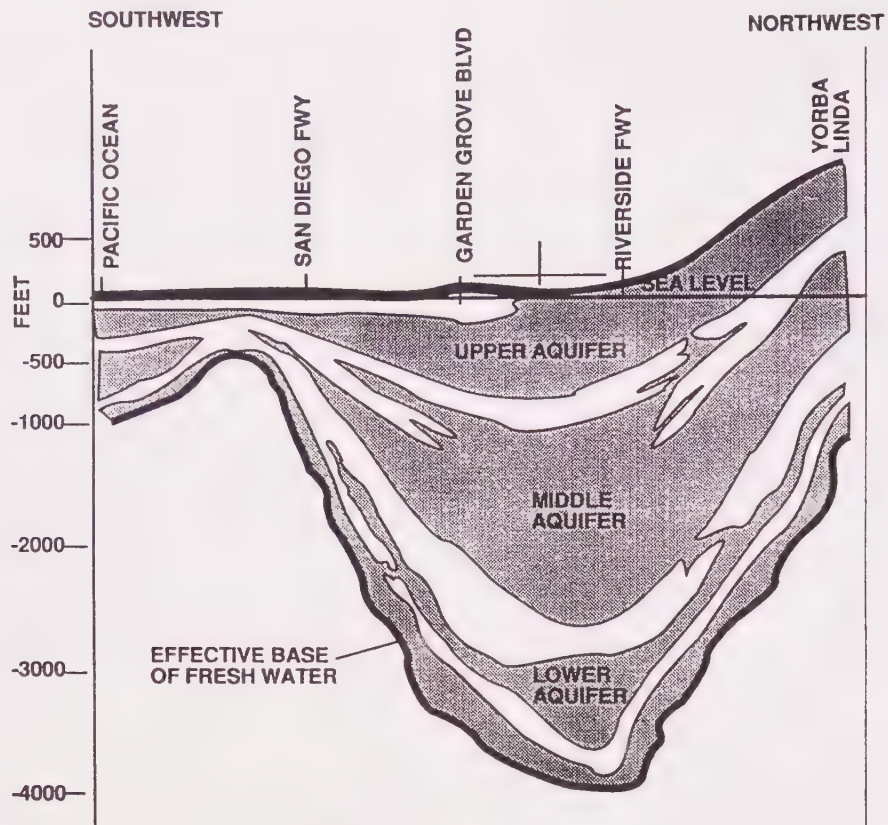


# ORANGE COUNTY GROUNDWATER BASIN

SOURCE:  
PLANNING  
GRAPHICS

MAP  
2-11







5. Public Education/Information

- a. Action: Support the water conservation efforts of county water districts and other agencies through public information and educational activities.
- b. Discussion: This program is intended to increase the community's awareness of the need for water conservation and provide educational assistance to residences and businesses.
- c. New or Existing Program: New
- d. Implementation Schedule: Commence upon adoption of Resources Element.
- e. Responsible Agencies: 1) Water Agencies  
2) Environmental Management Agency
- f. Source of Funds: 1) County General Fund  
2) Water Agencies  
3) California Department of Water Resources



## CHAPTER FIVE: ENERGY RESOURCES COMPONENT

### A. Overview

As indicated in Chapter Two (Energy Resources Section), there is a projected decrease in supply of and a projected increase in demand for traditional energy resources for Orange County. The fundamental factors underlying the projected decrease of traditional energy supply sources are of national and state-wide scope; however, there are also significant contributions which can be made by local government. Land use patterns, air quality programs, growth trends, transportation, and residential densities all directly affect local energy consumption. Conservation of existing energy through County actions, and by County residents and industry, is within the scope of local government. Alternative energy sources, which can provide for at least part of the County's future needs, should be investigated and developed. Since unlimited supply and availability can no longer be assumed, energy considerations now need to be evaluated along with the other factors that enter into the formulation of County policies and decisions and the development of resource conservation implementation programs contained in this element.

Portions of the mineral resource section of the Conservation Element (1978) are subsumed by the Energy Resources Component, which refines these sections and addresses the need for local energy planning activities through a comprehensive assessment of Orange County's energy situation. The component focuses on existing and projected energy demands and proposes an energy resource management strategy to address these demands. In addition, the component provides the framework for future energy planning activities.

The intent of this component is twofold: first, to set forth a comprehensive and integrated strategy for future energy planning actions; and, second, to minimize the constraints and potential deficiencies identified in previous sections.

### B. Goals, Objectives and Policies

This section presents three general goals for Orange County energy resource planning and management efforts. These goals and their objectives provide guidance for the specific policies and implementation programs which are also presented in the Energy Resources Component. Certain recommended policies and programs are based upon existing resource management activities (i.e., AQMP) which are referenced when appropriate.

#### 1. Goals and Objectives

Goal 1: Maximize the conservation and wise use of energy resources in all residences, businesses, public institutions and industries in Orange County.



Objective 1: Achieve a reduction in projected per capita energy demand and consumption by the year 2000.

Goal 2: Encourage the utilization of existing energy resources to their highest potential and the development of alternative energy sources consistent with sound energy conservation practices and techniques to meet the County's future energy demand.

Objective 2: Encourage the efficient development of local energy resources to supply a portion of the County's energy demand through the year 2000 in a manner which protects the environment.

Goal 3: Maximize the conservation of energy resources in all future land use and transportation planning decisions.

Objective 3.1: To achieve target residential densities along transportation corridors and in urban activity centers as set forth in the Air Quality Management Plan (AQMP).

Objective 3.2: To reduce transportation demand by establishing balanced communities which provide housing, employment, recreational and cultural opportunities for all segments of the population.

Objective 3.3: To maintain a community leadership role with respect to conservation of nonrenewable resources and assist existing utility conservation programs.

## 2. Policies

- a. Land Use: To plan urban land uses with a balance of residential, industrial, commercial and public land uses as set forth in the Land Use Element.
- b. Energy Resource Development: To encourage and actively support the efficient use and optimum development of energy resources in the County consistent with sound resource management practices.
- c. Energy Conservation: To encourage and actively support the utilization of energy conservation measures in all new and existing structures in the County.
- d. Transportation: To provide incentives for transportation system management programs and support regional public transportation programs that reduce energy consumption.
- e. Energy Financing: To examine the benefits of local government financing programs that promote energy conservation and development through cooperative public/private efforts.

- f. Alternative Energy Systems: To encourage the use of alternative energy systems and, to the extent feasible, remove the regulatory barriers to their implementation.
- g. Solar Access: To support and encourage voluntary efforts to provide solar access opportunities in new developments.

## C. Implementation Programs

The following section identifies existing and potential energy resource programs for Orange County. These programs range from the continuation or refinement of existing programs to the establishment of new programs. Since adoption of any of these programs requires that implementation considerations are addressed and implementation responsibilities are identified, the remainder of this section focuses on a description of each program and the delineation of responsible agencies. This provides a sound basis for the future implementation of energy resource programs.

### 1. County Facilities Energy Management

- a. Action: Continue and expand the existing energy conservation program for County buildings and facilities.
- b. Discussion: The County has derived significant cost savings from its in-house energy management efforts. This program would support these existing efforts and support additional activities, including energy audits and installation of energy saving features for County buildings.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: General Services Agency
- f. Source of Funds: 1) County General Fund  
2) Utilities



2. Energy Shortage Contingency Planning

- a. Action: Continue efforts to monitor energy supply trends and develop a plan which promotes an orderly response to energy shortages.
- b. Discussion: This program involves the preparation of a plan to deal with any sudden or unforeseen disruptions in energy supplies (e.g., oil embargo).
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: County Administrative Office
- f. Source of Funds: 1) County General Fund  
2) State Energy Commission

3. County Ordinance Review and Revision

- a. Action: Examine the County's land use and building regulations to determine whether implicit or explicit barriers exist to energy conservation or alternative energy technologies.
- b. Discussion: The County Advisory Solar Access Guidelines promote the use of solar energy in residential developments. The County Zoning Code and other regulations, however, may include requirements that prohibit or discourage the utilization of energy conserving features in residences and businesses in the County. These regulations would be analyzed for the purpose of eliminating or modifying barriers to energy conservation provided that no significant threat to the public health, safety, or welfare is created.
- c. New or Existing Program: New
- d. Implementation Schedule: Report recommendations to Board of Supervisors by July, 1985.
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds: 1) County General Fund  
2) State Energy Commission

4. County Energy Management Plan

- a. Action: Improve existing County energy resources management efforts through the development of a comprehensive energy management plan that provides a long-term strategy for meeting the County's future energy needs.
- b. Discussion: Although existing County energy conservation programs are effective, they are generally limited or narrow in scope and do not provide an integrated, consistent energy strategy. In order to be effective, an energy management plan must be developed in cooperation with utilities and other interested parties and would consist of the following components:
  - (1) Energy Resource Development: A more detailed evaluation of energy resources and their potential will be undertaken along with a development program.
  - (2) Commercial and Industrial Sector Programs: An evaluation of co-generation, and other energy conservation opportunities will be undertaken for potential application to the commercial and industrial sections, including County facilities. This evaluation will be conducted in cooperation with utilities and local businesses.
  - (3) Residential Sector Programs: Since the existing State building energy standards ensure energy savings in new residences, this component would focus on existing residential buildings and the opportunities for increased energy savings within these residences.
  - (4) Transportation Sector: This program would involve a cooperative evaluation of transportation system management opportunities in the County.
  - (5) Energy Conservation Financing: An evaluation of the various financing alternatives available for energy conservation and resource development.
  - (6) Implementation Plan: A comprehensive implementation plan for energy management would be developed. This implementation plan would support and augment existing utility energy management activities and emphasize voluntary conservation measures and the development of local energy resource supplies.
- c. New or Existing Program: New. Integrate existing programs.
- d. Implementation Schedule: Work program expected Fall, 1984.
- e. Responsible Agency: Environmental Management Agency



- f. Source of Funds:
- 1) County General Fund
  - 2) Community Development Block Grant Fund
  - 3) County Waste Enterprise Fund
  - 4) State Energy Commission

5. Community Energy Education

- a. Action: Support the community energy education efforts of utilities and other agencies through public information activities.
- b. Discussion: This program is intended to increase the community's awareness of the need for energy conservation and provide educational assistance to residences and businesses.
- c. New or Existing Program: New
- d. Implementation Schedule: Commence upon adoption of Resources Element.
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds:
  - 1) County General Fund
  - 2) Utilities
  - 3) State Energy Commission



## CHAPTER SIX: WATER RESOURCES COMPONENT

### A. Overview

The use, supply and conservation of water are critical issues in Orange County. Since almost every urban activity is dependent on water to some extent, it is in the best interests of the general public that the County's water resources are properly planned and managed.

The Water Resources Component updates and refines the water section of the Conservation Element (1978). The Water Resources Component also provides a framework for water resource planning in order to ensure that there will be a supply of adequate quality, that supports existing uses and future growth.

### B. Goal, Objectives and Policies

#### 1. Goal and Objectives

Goal: Ensure an adequate, dependable supply of water of acceptable quality for all reasonable uses.

Objective 1: To maintain the adequacy and dependability of imported water supplies.

Objective 2: To achieve a reduction in per capita water consumption by the year 2000.

Objective 3: To reduce dependence on imported water supplies through both conservation and local water resource development.

#### 2. Policies

- a. Water Supply: To ensure the adequacy of water supply necessary to serve existing and future development as defined by the General Plan.
- b. Conservation: To reduce per capita and total water consumption through conservation and reclamation programs, and the support of new technologies.
- c. Groundwater Resources: To support groundwater management efforts that are conducted by county water agencies.
- d. Shortage Planning: To ensure that Orange County will not be severely impaired by any potential future water shortages.
- e. Water Quality: To protect water quality through management and enforcement efforts.
- f. Intergovernmental Coordination: To encourage and support a cooperative effort among all agencies towards the resolution of problems and the utilization of opportunities in the planning and management of water resources.



### C. Implementation Programs

Because Orange County must rely so heavily on imported water supplies, the implementation programs within this section are directed toward ensuring future imported water supplies and eliminating water waste and conservation of existing supplies. The further development of local water resources is also included in these implementation programs. In addition, since the management of water resources is complicated by the great many agencies involved with different aspects of management, increased efforts towards intergovernmental coordination and cooperation are identified as an implementation program.

#### 1. County Water Conservation/Development Program

- a. Action: Develop and implement a program for the conservation and development of the county's water resources.
- b. Discussion: On June 15, 1983 the Board of Supervisors authorized development of a work program for a County Water Conservation/Development Program. This program would focus on:  
1) cost-effective water conservation measures (particularly for County facilities), 2) water shortage contingency planning, and 3) local resource development. The program is to be carried out in cooperation with local water purveying agencies.
- c. New or Existing Program: New
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds: 1) County General Fund  
2) Water Districts

## 2. Intergovernmental Coordination

- a. Action: Continue and expand existing intergovernmental activities towards achieving county water resource goals and objectives.
- b. Discussion: Increased coordination on the part of the county and local/regional water agencies serves to ensure effective communication and cooperation on the water supply and water quality issues. On July 15, 1983, the Board of Supervisors authorized EMA to establish regular liaison with the water agencies of Orange County towards achieving this end.

In addition to the County/water agency liaison program, ongoing coordination with the federal and state government on water resource programs is essential. Such activities include legislative review and development and intergovernmental water planning and management efforts to increase the adequacy and dependability of imported water supplies.

- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds: County General Fund

3. County Water Plan

- a. Action: Continue County Water Plan work effort and related activities.
- b. Discussion: The County Water Plan is a multi-phase study the objective of which is to ensure to the maximum extent possible an adequate, dependable water supply for all reasonable uses.

The Phase I County Water Plan outlined the county's water supply future under various supply scenarios. The Phase II report examined immediate and near-term water supply concerns and presented measures to address these concerns. The focus of the third phase is a study of issues of long-term concern regarding water supply. Phase III will also include the near-term water supply analysis and additional updates necessary to keep Phases I and II current and to advise the Board of Supervisors of matters of immediate concern.

- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agencies: 1) Environmental Management Agency  
2) County Administrative Office  
3) Water Agencies
- f. Source of Funds: 1) County General Fund  
2) Water Agencies

## Water Quality Management

- a. Action: Continue existing water quality monitoring and management efforts.
- b. Discussion: Water quality is as significant a resource management issue as water quantity, particularly in Orange County where the opportunity for developing additional local supplies is limited. This program focuses on the maintenance and enhancement of the water quality of both imported and local resources. Current activities include the implementation of the Regional Water Quality Control Plans (208 Plans) and enforcement of the County Industrial Waste Ordinance.
- c. New or Existing: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agencies:
  - 1) Environmental Management Agency
  - 2) Health Care Agency
  - 3) Water Agencies
  - 4) State Agencies
  - 5) Federal Agencies
- f. Source of Funds: Numerous Funding Sources



5. Public Education/Information

- a. Action: Support the water conservation efforts of county water districts and other agencies through public information and educational activities.
- b. Discussion: This program is intended to increase the community's awareness of the need for water conservation and provide educational assistance to residences and businesses.
- c. New or Existing Program: New
- d. Implementation Schedule: Commence upon adoption of Resources Element.
- e. Responsible Agencies: 1) Water Agencies  
2) Environmental Management Agency
- f. Source of Funds: 1) County General Fund  
2) Water Agencies  
3) California Department of Water Resources

## CHAPTER SEVEN: AIR RESOURCES COMPONENT

### A. Overview

Air quality is a regional problem in Southern California. As Orange County and the surrounding regions continue to develop, additional pressure will be placed upon air resources. A region-wide effort by the public and private sectors is needed to improve the air quality of the South Coast Air Basin and to attempt compliance with the mandates of the 1977 Clean Air Act.

The Air Resources Component establishes a framework for evaluating policy options and develops programs designed to implement policies and monitor results. The Component identifies control measures identified in the Draft 1988 AQMP as well as additional County efforts to address air resources. For detailed information regarding historical air quality background, regional overview, regional air quality analysis, and County and Regional Air resources management, refer to the Air Resources discussion in Chapter Two, Section 4 of this document.

### B. Goals and Objectives

Goal 1: Promote optimum sustainable environmental quality standards for air resources.

Objective 1: To the extent feasible, attainment of federal and state air quality standards by the year 2007.

### C. Policies

1. To develop and support programs which improve air quality or reduce air pollutant emissions.

### D. Implementation Programs

Pursuant to Section 172(a)(1) of the Clean Air Act, as amended, the Southern California Association of Governments (SCAG) and the South Coast Air Quality Management District (SCAQMD) have prepared an Air Quality Management Plan (AQMP) for the South Coast Air Basin with the assistance of the counties of Los Angeles, Orange, Riverside, and San Bernardino; the State of California Department of Transportation (CalTrans); and the State of California Air Resources Board (ARB).

The following section identifies existing air resources programs for Orange County. These programs involve the continuation or refinement of existing County programs. Since adoption of these programs would also constitute, to a certain extent, compliance with the Draft 1988 AQMP, this section includes descriptions of the proposed 1988 control measures and the delineation of responsible agencies. This provides a sound framework for the future implementation of air resource programs. Numbers in parentheses following the program title refer to the corresponding control measures found in the Draft 1988 AQMP.

1. Alternative Work Schedules (1.1)

- a. Action: Encourage employers to implement modified work schedules; encourage public and private education efforts.
- b. Discussion: In 1987, 6,500 of the County of Orange's 13,700 employees were working alternate work schedules. This is an increase from 200 employees working such schedules in 1980. In 1988 the Director of EMA approved a policy promoting flextime and approximately 50% of EMA now works such schedules.

Some Orange County cities are already implementing alternative work schedules, with more to follow, through adoption of OCTC's TRIP Program. Additional cities and businesses are expected to do so, if SCAQMD accepts the TRIP Program as a substitute for Regulation XV. The County is also involved in the TRIP pilot program for the unincorporated area.

- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: SCAQMD, Commuter Computer, OCTD Commuter Network, OCTC, County of Orange (various agencies)
- f. Source of Funds: Various funding sources.

2. Employer Ride Share and Transit Incentives (2.1)

- a. Action: Continue to encourage increased ridesharing and transit use.
- b. Discussion: To fully comply with this measure, a firm commitment from the County is required. This commitment would include direct policy statements; financial incentives/disincentives; development of Transportation Management Associations and/or Organizations (TMAs/TMOs); additional non-motorized transportation access; and development of trip reduction plans to be implemented on a Countywide basis.

The implementation of this measure would constitute an extension of the Regulation XV requirements, affecting employers of 25<sup>+</sup> employees rather than 100<sup>+</sup> employees. As a substitute to Regulation XV, the County's proposed TRIP program could satisfy the requirements of this measure.

The County has made Commuter Computer's and OCTD's carpool matching services available to its employees and encouraged carpooling through its County newsletter. The County also provides preferential parking for carpoolers.

Some Orange County cities are developing rideshare and transit incentives through OCTC's TRIP Program. More are expected to do so, if SCAQMD accepts the TRIP Program as a substitute for Regulation XV. The County's unincorporated area is also involved in the TRIP pilot program.

- c. New or Existing Program: Existing.
- d. Implementation Schedule: Ongoing.
- e. Responsible Agencies: EMA, SCAQMD, OCTC, OCTD.
- f. Source of Funds: County General Fund and various other funding sources.



### 3. Parking Management (2.2)

- a. Action: Continue to seek additional measures which reduce trips by using various parking control strategies.
- b. Discussion: There has been some cursory work done in the area of parking management. As with the Ridesharing measure, a total commitment by the County would be required for complete implementation. In areas where parking spaces are already at a premium, additional caps on parking and elimination of on-street parking may pose problems for employers (i.e., the immediate area surrounding the Santa Ana/Orange Civic Center Area).

Orange County provides parking space in its garage facilities for carpools of three or more people, managers, supervisors, and long term employees. Other employees are not provided free parking and must walk three blocks from the nearest available free parking facilities.

A comprehensive study would need to be conducted in order to ensure that an adequate, available parking supply or other measures are in place at the time of full implementation of this measure. Also, viable transit commuter alternatives should be in place to keep full effectiveness of this measure.

- c. New or Existing Program: Existing.
- d. Implementation Schedule: Ongoing.
- e. Responsible Agency: GSA, SCAQMD.
- f. Source of funds: County General Fund and various other funding sources.

4. Merchant Rideshare and Transit Incentives (2.4)

- a. Action: Continue to implement non-work trip reduction measures.
- b. Discussion: This measure seeks to reduce non-work single occupant auto trips by offering facilities for bicyclists and pedestrians and incentives for transit use, carpooling, bicycling, and walking. While not directly involved in merchant rideshare and transit incentive programs, the County has been involved in ensuring that bicycle and pedestrian facilities exist for public use.
- c. New or Existing Program: Existing.
- d. Implementation Schedule: Ongoing.
- e. Responsible Agency: EMA, SCAQMD, OCTD.
- f. Source of Funds: County General Fund and various other funding sources.

5. Auto-Use Restrictions (2.5)

- a. Action: Continue to implement measures which decrease trips by requiring special event centers or other areas of heavy pedestrian activity to provide park-and-ride facilities.
- b. Discussion: As part of its environmental document review process, the County reviews projects for consistency with the Master Plan of Countywide Bikeways and encourages project proponents to provide local bikeway facilities as a mitigation measure. To encourage public awareness of bicycling opportunities, the County also publishes a map of existing bikeways, which is sold at County offices and bicycle shops. The County also provides bike racks around its offices at the Civic Center and shower facilities at the Courthouse. Additionally, the County has a Bike Trail Program which is used to construct bikeways in the unincorporated area of the County to encourage the use of the bicycle as an alternative mode of transportation.

This measure is also implemented at the John Wayne Airport facility where off-site parking with free shuttle to the main terminal area is provided.

- c. New or Existing Program: Existing.
- d. Implementation Schedule: Ongoing.
- e. Responsible Agency: EMA, SCAQMD, OCTD.
- f. Source of funds: County General fund and various other funding sources.

6. HOV Lanes (2.6) and Freeway Capacity Enhancements (11)

- a. Action: Continue to support CalTrans in the implementation of HOV lanes on county freeways, and transportation corridors.
- b. Discussion: This measure seeks to increase vehicle occupancy by providing HOV lanes. HOV lanes offer a time savings over mixed use lanes and thus provide an incentive towards carpooling. HOV lanes are being constructed for County freeways, such as I-5, I-405 and SR-55. They are also being considered for the San Joaquin Hills, the Foothill and Eastern Transportation Corridors in the county.
- c. New or Existing Program: Existing.
- d. Implementation Schedule: Ongoing.
- e. Responsible Agency: CalTrans, Transportation Corridor Agencies.
- f. Source of Funds: Federal and State funding, developer fees, tolls.



7. Growth Management (3)

- a. Action: Continue to implement growth monitoring and encourage balanced development.
- b. Discussion: The County has been involved in monitoring growth and encouraging balanced development. Actions taken include the following:
  - o the County monitors growth through its Annual Monitoring Report/Development Monitoring Program (AMR/DMP) process.
  - o The General Plan was amended to establish urban activity centers along major routes. Zoning to implement this concept was completed by 1985.
  - o County land use policies support balanced land uses containing a mix of residential, commercial, and public land uses, planned development in accord with the adequacy of the transportation system, and mitigation measures to accommodate added transportation system demand.
  - o In 1988, the Board of Supervisors approved a growth management plan which will apply to all new projects.
- c. New or Existing Program: Existing.
- d. Implementation Schedule: Ongoing.
- e. Responsible Agency: SCAG and/or SCAQMD and/or EMA
- f. Source of Funds: County General Fund and various other funding sources.

8. Traffic Flow Improvements (5)

- a. Action: Encourage the implementation of measures which seek to reduce emissions by improving transportation system efficiency.
- b. Discussion: CalTrans operates the traffic signals in the vicinity of freeway interchanges while local jurisdictions coordinate their own. CalTrans signals are not compatible with local agencies' signals and cannot be synchronized with them, a situation that often causes problems on the local arterials. Coordination between the two systems should be pursued to relieve arterial congestion in the vicinity of freeways.

CalTrans is planning to install ramp metering on all freeways in Orange County. CalTrans is working with the cities on signal coordination through the Signal Round Table Committee. An OCTC Study on signal coordination for 20 arterials is nearly completed.

- c. New or Existing Program: Existing.
- d. Implementation Schedule: Ongoing.
- e. Responsible Agency: CalTrans, OCTC.
- f. Source of Funds: Various State and local funding sources.

9. Non-recurrent Congestion Relief (6)

- a. Action: Encourage the implementation of measures which seek to reduce congestion caused by non-recurrent sources.
- b. Discussion: At the request of OCTC, CalTrans has committed to monitor the freeway system more closely in order to remove incidents more rapidly. Additionally, the newly created OC Freeway Callbox system should aid in reporting freeway accidents/hazards, leading to improved incident response time.
- c. New or Existing Program: Existing.
- d. Implementation Schedule: Ongoing.
- e. Responsible Agency: CalTrans, CHP, OCTC.
- f. Source of Funds: Various State and local funding sources.

10. Indirect Source: Aircraft and Ground Service Vehicles (7)

- a. Action: Continue to encourage reduction of airport related emissions through more emission efficient operations and adoption of improved technology.
- b. Discussion: John Wayne Airport has been making significant progress in implementing clean air measures in the past few years. Actions taken include:
  - o As part of the Master Plan, two high speed runways have been added as well as two additional taxiways which are not high speed.
  - o The number of aircraft engines in use during taxi and idle is being reduced. In order to conserve fuel, most airline companies that operate two or more engine planes routinely shut down one or more of their engines when taxiing or idling.
  - o The airport controls departure times by setting limits on the number of departures and arrivals during any given time period.
  - o The terminal facilities have been redesigned. The new terminal is closer to the end of the primary runway, reducing the length of taxi time for departing aircraft. Combined with new high speed taxiway, this should reduce taxi time for all aircraft.
  - o The new terminal has centralized electric power outlets, as well as hydrant fueling which supersedes fueling by fuel truck.
- c. New or Existing Program: Existing.
- d. Implementation Schedule: Ongoing.
- e. Responsible Agency: SCAQMD and airport operators.
- f. Source of Funds: Varous funding sources.



11. Indirect Source: Airport Ground Access (9)

- a. Action: Continue to encourage implementation of measures which seek to reduce congestion around airports.
- b. Discussion: This measure seeks to reduce congestion around airports by encouraging travelers to rideshare or use transit, and by improving airport physical features to accommodate this. In the John Wayne Airport Expansion, trip reduction methods were examined, with the result that they committed to increasing passenger load factors.
- c. New or Existing Program: Existing.
- d. Implementation Schedule: Ongoing.
- e. Responsible Agency: SCAQMD, OCTD, airport operators.
- f. Source of Funds: Various funding sources.

12. Unpaved Roads and Parking Lots (10.3)

- a. Action: Continue to implement measures which reduce fugitive dust emissions.
- b. Discussion: This measure seeks to reduce fugitive dust emissions due to vehicle use of unpaved roads and parking facilities. The County's Zoning Code requires that "...All parking spaces, driveways and maneuvering areas shall be paved and permanently maintained with asphaltic concrete, cement concrete or other all-weather surfacing."
- c. New or Existing Program: Existing.
- d. Implementation Schedule: Ongoing.
- e. Responsible Agency: EMA.
- f. Source of Funds: County General Fund.

13. Replacement of High Emitting Aircraft (13)

- a. Action: Encourage the replacement of high emitting aircraft at local airports.
- b. Discussion: This measure seeks to replace older aircraft with more modern emission efficient ones. Compliance with noise regulations also insures a cleaner aircraft fleet mix, as the classification of planes complying with noise regulations is also less polluting.
- c. New or Existing Program: Existing.
- d. Implementation Schedule: Ongoing.
- e. Responsible Agency: Airport operators, airlines, FAA.
- f. Source of Funds: Various funding sources.

14. Energy Conservation (18)

- a. Action: Continue to implement energy conservation measures.
- b. Discussion: The County of Orange has had an active Board mandated energy conservation program since 1974.

The proposed AQMP calls for a 15% energy reduction by the year 2000 and a 30% reduction by 2010. This plan would penalize all agencies that have developed good energy conservation programs in the past. The County of Orange has reduced its energy usage by 52% compared to pre-conservation years.

A more equitable approach to energy conservation would be to establish a BTU (British Thermal Unit) per square foot ratio for various types of buildings. For example, Orange County buildings have a 115,000 BTU per square foot ratio at the present time. Prior to energy conservation, it was 239,000 BTU per square foot.

The County's energy conservation program is still ongoing. All major new buildings and new facility additions are carefully analyzed for energy efficiency. In addition, energy projects are still being implemented in existing facilities. The bottom line is that a 30% energy reduction would be very difficult for the County to achieve based on the reductions which have already been realized.

- c. New or Existing Program: Existing.
- d. Implementation Schedule: Ongoing.
- e. Responsible Agency: EMA and Special districts.
- f. Source of Funds: County General Fund.



15. Waste Recycling (18.2)

- a. Action: Continue to implement waste recycling measures.
- b. Discussion: This measure seeks to reduce energy use and thus emissions by requiring local government to recycle glass and paper products. Orange County currently collects white paper and computer paper for recycling. Local government could mandate glass recycling.
- c. New or Existing Program: Existing.
- d. Implementation Schedule: Ongoing.
- e. Responsible Agency: SCAQMD, GSA.
- f. Source of Funds: County General Fund and various funding sources.

## CHAPTER EIGHT: OPEN SPACE COMPONENT

### A. Introduction

The Open Space Component is the open space plan for the unincorporated areas of Orange County. This component is the successor to the Open Space Element originally adopted by the Board of Supervisors on June 27, 1973. The preparation of this component is in compliance with State Government Code Sections 65560-65568, which require each city and county to prepare and adopt an open space plan for the comprehensive and long-range preservation of open space land within its jurisdiction.

#### Purpose of Component

The Open Space Component contains the necessary goals, objectives, policies and programs to promote the preservation and protection of resource areas and the protection of the public from potential hazards. The component also functions in a manner to shape the overall urban form of Orange County. To that end, open space facilities such as greenbelts to buffer conflicting land uses or to link recreation facilities along regional trails and water courses are desired, as well as areas set aside to preserve cultural-historic resources, significant wildlife habitats and biotic resources such as oak groves, sycamore/riparian woodlands, and marshlands.

In general, open space areas are offered by landowners for dedication to the County or the County's designee as part of the overall development process. These areas are then turned over to the Harbors, Beaches and Parks District or to a County Service Area for operation and maintenance. The Environmental Management Agency evaluates public and private development proposals to insure that the goals, objectives, and policies of the Open Space Component are satisfied. In addition, a legitimate role exists for private conservation organizations and other non-profit corporate bodies to own and operate open space areas.

An integral part of the Open Space Component is the Open Space/-Conservation Program Map which depicts an open space framework of Countywide significance. This framework includes areas of resource concentration such as existing and proposed regional recreation facilities and a system of linkages such as trails and major open space corridors. The implementation programs provide the mechanism by which an integrated open space network can be realized.

#### Definition of Open Space

Open space is a valuable resource in any community or county experiencing urbanization. The value of open space to Orange County includes shaping the overall urban form, providing outdoor recreation opportunities, enhancing and protecting scenic vistas, ensuring public health and safety, preserving valuable natural resources, and providing areas for the managed production of resources.

The State Government Code also contains an open space definition that further clarifies the role of open space. Open space is:

"Any parcel or area of land or water which is essentially unimproved and devoted to an open space use as defined (below)

"1. The Preservation of Natural Resources, including but not limited to--

- a. areas required for the preservation of plant and animal life, including habitat for fish and wildlife species;
- b. areas required for ecologic and other scientific study purposes;
- c. rivers, streams, bays and estuaries; and
- d. coastal beaches, lakeshores, banks of rivers and streams, and watershed lands.

"2. The Managed Production of Resources, including but not limited to--

- a. forest lands, rangeland, agricultural lands, and areas of economic importance for the production of food or fiber;
- b. areas required for recharge of ground water basins;
- c. bays, estuaries, marshes, rivers and streams, which are important for the management of commercial fisheries; and
- d. areas containing major mineral deposits, including those in short supply.

"3. Outdoor Recreation, including but not limited to--

- a. areas of outstanding scenic, aesthetic, historic and cultural values;
- b. areas particularly suited for park and recreation purposes, including access to lakeshores, beaches, rivers and streams; and
- c. areas which serve as links between major recreation and open space reservations, including utility easements, banks of rivers and streams, trails and scenic highway corridors.

"4. Public Health and Safety, including but not limited to--

- a. areas which require special management or regulations because of hazardous or special conditions such as earthquake fault

zones, unstable soil areas, floodplains, watersheds, and areas presenting high fire risks;

- b. areas required for the protection of water quality and reservoirs; and
- c. areas required for the protection and enhancement of air quality."

Not all undeveloped land is to be considered for open space protection. In accordance with the State Government Code definition of open space, it is obvious that the objective is for local agencies to take the necessary measures that preserve and protect resource areas from incompatible development or use and to protect the public from potential development or use hazards.

#### Characteristics of Open Space

Open space areas within Orange County may be large expanses, long corridors or small parcels. (Chapter Two inventories existing and proposed open space.) The regional distribution and shape of open space is influenced greatly by the open space criteria discussed in the preceding section, Definition of Open Space. Large open space areas preserve needed wildlife and vegetation habitat, conserve natural resources and acreage necessary for natural processes such as ground water recharge, and also provide recreation opportunities. Open space corridors generally follow natural features such as stream courses or ridgelines. These linear features are valuable because they emphasize natural resource conservation, natural habitat preservation, scenic vista enhancement and outdoor recreation opportunities. Often open space corridors link the larger open space areas into an integrated open space network. This network supports the migration of wildlife between habitat areas, preserves significant watershed areas, shapes the urban form and benefits the citizens of the County through recreation opportunities, scenic vista enhancement and cultural-historic resources preservation.

Likewise, open space may be held in small parcels. These parcels are primarily held by individuals or homeowners' associations. These acreages, valuable in the aggregate for their scenic and recreation attributes, generally do not meet the other open space size criteria with which the County's open space program is concerned. It should be noted that the Open Space/Conservation Program Map does not map these parcels.

Open space areas designated on the program map, whether a large area or a corridor, can be publicly or privately owned and maintained. The County owns and maintains large open space areas like O'Neill Regional Park and Caspers Wilderness Park as well as open space corridors such as along Aliso Creek and portions of other stream courses.

The State and Federal governments are also holders of large open space areas within the County. The largest open space area in the County, the Cleveland National Forest, is maintained by the Federal government. The



State has jurisdiction over open space areas in the Chino Hills abutting Riverside and San Bernardino Counties and several large State beach parks. The State has plans for further expansion of its holdings within the County (e.g., Chino Hills).

Significant open space areas are also owned and maintained by private organizations. The Audubon Society owns the Starr Ranch Audubon Sanctuary, a large open space area adjacent to Caspers Wilderness Park and the Cleveland National Forest. The private community of Coto de Caza owns a major permanent open space area adjacent to the Starr Ranch Audubon Sanctuary and Caspers Wilderness Park.

#### B. Goals, Objectives and Policies

Goals, objectives and policies are those parts of the plan that set in motion private and governmental actions. The goals are broad statements of purpose. The objectives are more measurable targets against which actions may be evaluated. The policies are specific statements that guide the action and provide clear commitment.

GOAL 1: Retain the character and natural beauty of the environment through the preservation, conservation and maintenance of open space.

Objective 1: To designate open space areas that preserve, conserve, maintain and enhance the significant natural resources and physical features of unincorporated Orange County.

Policy 1.1: To guide and regulate development of the unincorporated areas of the County to ensure that the character and natural beauty of Orange County is retained.

Policy 1.2: To implement the Open Space Component through a program organization capable of conducting multiple projects at priority locations throughout the County and with sufficient resources, authority and responsibility to effectively manage the program.

Policy 1.3: To seek out, evaluate and take advantage of special opportunities to obtain open space as these opportunities become available and when the available open space meets or helps to meet established open space goals and objectives.

Policy 1.4: To assume a leadership role in establishing and supporting an open space program for Orange County.

GOAL 2: Promote the health and safety of Orange County residents and visitors through the regulation and maintenance of open space lands.

Objective 2: To protect life and property by regulating land use in areas subject to flooding, landslides, noise, high fire hazard and high earthquake potential; and to set aside land for human refuge in times of natural disaster.

Policy 2.1: To ensure the health and safety of County residents by identifying, planning for and managing open space areas subject to flooding, landslides, noise, high fire hazards, and earthquake potential.

GOAL 3: Conserve open space lands needed for the preservation of natural processes and the managed production of resources.

Objective 3: To preserve open space lands that prevent erosion, siltation, flood and drought, and to promote the production of food and fiber products.

Policy 3.1: To encourage the conservation of open space lands which prevent erosion, siltation, flood and drought, and to discourage the early conversion of open space to some other land use.

Policy 3.2: To ensure the wise use of County resources by identifying, planning or assisting in the planning for and assuming management responsibility when appropriate for open space areas used for the managed production of resources including, but not limited to, forest lands, rangeland, agricultural lands and areas of economic importance for the production of food or fiber; areas required for recharge of groundwater basins; tidelands, beaches, bays, estuaries, marshes, rivers and streams which are important for the management of commercial fisheries and for beach sand replenishment; and areas containing mineral deposits.

GOAL 4: Conserve open space lands needed for recreation, education and scientific activities, as well as cultural-historic preservation.

Objective 4: To encourage the conservation of open space lands which provide recreational scenic, scientific and educational opportunities.

Policy 4: To plan for the acquisition, development, maintenance, operation and financing of open space lands which provide recreational, scenic, aesthetic, scientific and educational opportunities.

#### C. Open Space/Conservation Program Map

The Open Space/Conservation Program Map does not designate land use; rather, it identifies broad open space areas and corridors with physical, cultural or economic attributes which require consideration at subsequent

levels of planning. These open space areas and corridors are regional in nature and are intended to benefit and be enjoyed by the entire population of Orange County. They also enhance or augment regional recreation facilities.

The program map does not identify non-regional open space areas and corridors. The scope of non-regional open space is intended primarily for the enjoyment, use and benefit of the neighboring community. Non-regional open space, often referred to as local open space, may link local or community recreation facilities. These areas enhance or augment local recreation facilities. These areas are identified in the Community Profiles, Specific Plans or other development plans.

The Open Space/Conservation Program Map is consistent with other elements of the General Plan. The map supports the Recreation Element, the Transportation Element (the Master Plan of Scenic Highways and Master Plan of Countywide Bikeways) and the Natural Resources and Cultural-Historic Resources Components of this element. The map depicts open space areas for regional recreation, greenbelts, wildlife and vegetation habitats, major water courses, agriculture, mineral resources, major watershed and water recharge areas, tidelands, beaches, shoreline areas in need of sand replenishment, stream valleys, scenic and conservation corridors and areas of cultural-historic importance. With the exception of existing regional park facilities, open space areas illustrated on the Open Space/Conservation Program Map (Figure 1) are schematically mapped.

#### Definition of Open Space/Conservation Categories

This section describes the open space categories depicted on the Open Space/Conservation Program Map. The descriptions provide insight into the physical, recreational, cultural and economic attributes of regional open space areas within the County.

Open Space, Conservation and Scenic Corridors - Linear open space features satisfying multiple open space objectives such as shaping urban form, preserving cultural-historic resources, providing recreation linkage between open space nodes, preserving natural processes primarily those relating to the shoreline, watershed areas, establishing a visual sense of community identity, and conserving natural resources and habitat areas. Open space corridors may also act as buffers between incompatible land uses or as separation from noise or visual intrusion.

Open space corridors may involve a chain of regional recreation facilities such as along Aliso Creek and the Santa Ana River, a stream valley, a series of ridgelines, a linear expanse of agricultural land, a scenic highway corridor or series of riding and hiking trails or off-road bikeways (Class I). These corridors provide valuable conservation and protection for wildlife and vegetation habitats, agriculture, groundwater recharge, and promote recreation. Also, open space corridors may include private recreation facilities such as golf corridors or recreational lakes.



Open Space and Conservation Nodes - Large tracts of land serving as open space cores, often linked by open space corridors. These core areas contain resource concentrations, existing and proposed regional parks (e.g., O'Neill Regional Park and Limestone Canyon Regional Park), State and Federal open space areas (e.g., Crystal Cove State Park and the Cleveland National Forest), and other undeveloped areas with significant scenic, recreation or ecologic values. These nodes are often a focus for riding and hiking trails, bikeways, and critical wildlife and vegetation habitat. These areas provide a focus for natural resource preservation, conservation and protection functions, recreation opportunities, and promote community identity through the shaping of the urban form.

As stated, open space nodes include regional parks thus tying the Open Space Component to the Recreation Element. A regional park is an area of land which offers recreation or scenic attraction of Countywide significance, generally not available in local parks. They are of sufficient size to offer recreation facilities and opportunities that are enjoyed by and benefit the citizens of Orange County.

Existing regional parks are regional open space areas which are owned and maintained by the County of Orange for the purpose of meeting the County's open space as well as recreation objectives.

A proposed regional park is an open space node or area that meets the County's open space and recreation objectives, but has not been obtained by the County. As acquisition opportunities present themselves, these important nodes are integrated into the regional recreation network.

High-Priority Open Space Areas - Key open space areas that are subject to multiple public works programs (e.g., parks, trails, scenic highways), are subject to multi-agency implementation efforts, and/or buffer open space areas of national significance. They are important and valuable because of a high concentration of open space and conservation features such as the presence of a regional recreation facility, critical wildlife or vegetation habitat, major shoreline or watershed area or other important natural resources or processes. These areas are a priority because of the urbanization process that focuses attention upon their open space and conservation characteristics.

#### Open Space High-Priority Areas

A list of open space high-priority areas follows. In general, all existing and proposed open space areas depicted on the Open Space/Conservation Program Map possess important open space value to Orange County because they preserve important natural features, provide significant outdoor recreation opportunities, conserve valuable resources (i.e., agricultural, mineral, watershed, wildlife and vegetation habitats, tidelands, beaches and cultural-historic features), shape and guide urban development and form, and protect public health and safety.



Among these there exist several equally important, open space areas that merit high-priority attention and implementation efforts as may be necessary due to one or more special conditions. These special conditions are:

1. The open space area is subject to or is affected by other public works programs such as existing and proposed regional riding and hiking trails, off-road bikeways, scenic highways, County, State, and/or Federal open space/recreation facilities; or the presence of unique or special physical features such as salt marshes, tidal lands, perennial streams, and freshwater bodies.
2. The open space area has broad based support from diverse organizations such as citizen advocacy groups, corporate non-profit conservation bodies, municipal, County, State, and/or Federal agencies, and/or private landowners.
3. The open space area enhances or buffers an existing open space resource of national significance, i.e., the Cleveland National Forest and coastal zone resources.

These high-priority areas identified through the aforementioned criteria are grouped below on the basis of the level of implementation to date.

o Largely implemented, with some remaining opportunities for further refinement and expansion:

CHINO HILLS - A special open space area providing abundant outdoor recreation opportunities as well as preserving important wildlife and vegetation habitat. The sole opportunity to implement a permanent large open space area in the North County, Chino Hills merits high priority status through the combined efforts of the City of Brea (Brea Wilderness), City of Yorba Linda (Lomas de Yorba Sur open space), County of Orange and U.S. Army Corps of Engineers (Carbon Canyon Regional Park), State of California (Chino Hills State Park) and Hills for Everyone, Inc., to create and operate a major recreation/open space area for the benefit of County residents. Reinforcing this high-priority status is the presence of a scenic highway, arterial bikeways, a State park, and a County regional park.

SANTA ANA RIVER Greenbelt Corridor - Oldest of the County's greenbelt efforts, the Santa Ana River corridor has largely been implemented through the joint efforts of cities along the river, the County of Orange Flood Control District, the Harbors, Beaches and Parks District, various water districts, and the U.S. Army Corps of Engineers.

To date, open space and recreation facilities have been implemented along the Santa Ana River including various city parks, Orange County Flood Control District facilities and rights-of-way, four County regional parks, a public beach, regional

bicycle and riding and hiking trails proposed for linkage to Riverside and San Bernardino Counties, and various water district facilities. The U.S. Army Corps of Engineers is proposing to undertake a major flood control improvement project along the river in which various recreation amenities are envisioned. Opportunities for additional open space acquisitions may arise with this project, in connection with future private project approvals along the river. The Santa Ana River merits high-priority open space implementation efforts due to the success of the multi-agency efforts in creating the existing and proposed public facilities described above.

- o Implementation underway with significant opportunities for further refinement and expansion:

ALISO CREEK CORRIDOR - A nineteen-mile greenbelt linking the Cleveland National Forest to the Pacific Ocean. This area is the subject of the Aliso Creek Corridor Specific Plan (Concept). Aliso Creek Corridor merits high-priority status due to the presence of scenic highways, arterial bikeways, regional riding and hiking trails, various local and community parks, and three existing and proposed County regional parks (Whiting Ranch, Aliso/Wood Canyons and Aliso Beach Park). Portions of trails and parks within the corridor have been funded with grants from a variety of State and Federal sources. The corridor links the Laguna Greenbelt with the Cleveland National Forest, thus connecting the County's largest coastal and inland open space areas.

Areas approaching and surrounding CASPERS WILDERNESS PARK including San Juan Creek Corridor - Caspers Wilderness Park and environs provides outdoor recreation opportunities in a "wilderness" setting. The park and the adjacent Audubon property constitute the most substantial opportunity to buffer the Cleveland National Forest in the Southeast County. San Juan Creek open space corridor straddling Ortega Highway constitutes one of the major national forest gateways, and opportunities exist to expand Caspers Wilderness Park downstream to enhance and preserve the overall gateway effect to Caspers Wilderness Park and the Cleveland National Forest. This area is valuable because of its scenic qualities, recreation opportunities, and for the preservation of important ecological habitats. The Caspers Wilderness Park area merits high-priority status through the combined efforts of County of Orange (Caspers Wilderness Park), U.S. Department of Agriculture (Cleveland National Forest), the National Audubon Society (Starr Ranch Audubon Sanctuary), and adjacent private landowners to create and operate a major conservation and recreation open space area for the benefit of County residents. Reinforcing this high-priority status is the presence of existing and proposed regional riding and hiking trails, off-road bikeways, a scenic highway, perennial streams, a private

ecological preserve, a County wilderness park, and a Federal open space area.

LAGUNA GREENBELT - Proposed as the County's largest coastal open space/recreation area, Laguna Greenbelt is the subject of the Irvine Coast Local Coastal Program (LCP), the Aliso Remainder LCP, the Laguna Beach LCP, the South Laguna LCP, the Aliso Creek Corridor Specific Plan (Concept), the Laguna Greenbelt Final Report, the Aliso Greenbelt Management Plan, the Aliso Greenbelt Development and Operations Plan, the Aliso Beach Park General Development Plan, and the Crystal Cove State Park General Development Plan.

Laguna Greenbelt is recognized statewide for its outstanding scenic and conservation aspects and its valuable wildlife and vegetation habitats. One of the few opportunities to implement a permanent large open space and recreation area along the South Orange County coast, Laguna Greenbelt merits high-priority status through the combined efforts of the Cities of Laguna Beach, Newport Beach, and Irvine, the South Laguna Civic Association, the County of Orange (Aliso/Wood Canyons Regional Park, Laguna Niguel Regional Park, Aliso Beach Park, the Irvine coast open space, and the proposed Laguna/Laurel Canyons Regional Park), the State Coastal Conservancy, the State Coastal Commission, the State Department of Parks and Recreation (Crystal Cove State Park) Laguna Greenbelt, Inc., Friends of the Irvine Coast, Inc., and in excess of fifteen private landowners, particularly the Mission Viejo and Irvine Companies. Reinforcing this high-priority status is the presence of three scenic highways, various arterial bikeways and regional riding and hiking trails, five existing and proposed County regional parks and open spaces, and a State park.

Open space buffer lands adjacent to the ORANGE COUNTY SHORELINE - The Orange County coast is recognized world-wide for its broad sandy beaches in the North County, its rocky cliffs and promontories punctuated with spectacular, isolated pocket coves in the South County, its delicate tidelands, marine life refuges, and the various wetlands, bays, viewpoints, and harbors along the coast. Preservation of bluffs and views accessible from public rights-of-way, maintenance and refurbishment of piers and boardwalks, maintenance dredging of harbors and bays, restoration of degraded wetlands, replenishment of beach sands, provision of vistapoints, beach parks and parking facilities, and provision of adequate pedestrian rights-of-way and accessways to all public tidelands present opportunities for additional open space buffers to enhance and protect this resource of national significance.

The County shoreline open space buffer merits high-priority status due to its national significance and because of the combined efforts of numerous Federal, State, regional, and local agencies and various citizens groups to manage and preserve this major



conservation and recreation resource for the benefit of the nation's residents. Reinforcing this high-priority status is the presence of existing and proposed arterial bikeways, scenic highways, and many municipal, County, State, and Federal parks, harbors, accessways, viewpoints, preserves, wildlife refuges, wetlands, and/or other beach related public facilities wildlife and the County's Local Coastal Program planning efforts.

- o Early stages of implementation with greatest opportunities for success.

BOLSA CHICA - One of the few opportunities to preserve a permanent large open space area along the North Orange coast, Bolsa Chica merits high-priority status due to the combined efforts of the City of Huntington Beach (Huntington Beach Central Park), the County of Orange (proposed Bolsa Chica Linear Regional Park and Bolsa Chica Harbor), the State of California (Bolsa Chica State Beach and Bolsa Chica Ecological Reserve), Signal Landmark, Inc., and Amigos de Bolsa Chica, Inc., to create a major permanent water-oriented open space area for the benefit of County residents. Reinforcing this high-priority status is the presence of a scenic highway, arterial bikeways, a State ecological reserve, a landowner commitment to double the size of the reserve in return for development approvals on the balance of the property, and the proposed Bolsa Chica Linear Regional Park.

Open space buffer lands adjacent to the CLEVELAND NATIONAL FOREST - Most of America's national forests are located in rural areas, and very few urban counties in the United States possess an urban national forest. The presence of the Cleveland National Forest in Orange County is a unique legacy which merits special efforts to buffer this nationally significant open space resource from potential land use conflicts that can arise from urbanizing right to the forest boundary. A substantial open space buffer is needed along the forest boundary to minimize inherent conflicts between urbanization and forest wildlife resources, and to reduce the potential impacts on urbanization that can arise from wildfires, flooding, landslides, erosion and siltation. In addition, the mountainous terrain within the Cleveland National Forest is very steep, and few opportunities exist to develop access points or staging areas inside the forest. The foothills abutting the forest boundary possess outstanding scenic qualities and significant watershed and wildlife habitat for mountain lion, deer, hawks, and eagles. Moreover, they contain more gentle terrain that presents opportunities to provide adequate access points and staging areas for forest-related recreation.

The Cleveland National Forest buffer area merits high-priority status due to the combined efforts of the County of Orange (Caspers Wilderness Park, Robinson Ranch Open Space, O'Neill Regional Park, and the proposed Limestone and Whiting Ranch Regional Parks), the U.S. Department of Agriculture (Cleveland



National Forest), and the National Audubon Society (Audubon Sanctuary at Starr Ranch), to create and operate a major conservation and recreation open space area for the benefit of the nation's residents. Reinforcing this high-priority status is the presence of existing and proposed regional riding and hiking trails, arterial bikeways, scenic highways, the Starr Ranch Audubon Sanctuary, and existing and proposed County regional parks in close proximity.

UPPER NEWPORT BAY - A significant resource area that is valuable as a wildlife refuge, a recreation area, and for its archaeological and paleontological resources. One of the few opportunities to implement a permanent large open space area along the Central Orange coast, Upper Newport Bay merits high-priority status through the combined efforts of the City of Newport Beach and County of Orange (various jointly-owned parksites), County of Orange (Dunes Aquatic Park), State of California (Upper Newport Bay Ecological Reserve) and the Friends of Upper Newport Bay, Inc., to create a major permanent water-oriented open space area for the benefit of County residents. Reinforcing this high-priority status is the presence of a scenic highway, arterial bikeways, existing and proposed regional riding and hiking trails, a State ecological preserve, a large body of water with marshlands, and the proposed Upper Newport Bay Regional Park.

UPPER SANTIAGO CANYON and environs - The Upper Santiago Canyon area is proposed as the County's largest inland open space/recreation corridor, linking the proposed Limestone Canyon/Whiting Ranch Regional Park complex with the Irvine Park/proposed Villa Park Basin, Peters Canyon and Weir Canyon Regional Park complex. Upper Santiago Canyon open space corridor affords buffering and gateway opportunities at points along the Cleveland National Forest boundary in the Central County and is easily accessible to residents of the County's largest cities. The area includes Orange County's largest lake, Santiago Reservoir. When combined with the proposed Limestone Canyon Regional Park, Santiago Reservoir presents a centrally located opportunity to establish the County's largest active urban recreation area, modelled after Griffith Park in Los Angeles.

Upper Santiago Canyon and environs merit high-priority status due to the presence of a scenic highway, arterial bikeways, existing and proposed regional riding and hiking trails, and six existing and proposed County regional parks.

- o Other open space opportunities through specialized treatments and cooperative efforts.

URBANIZED AREAS - High-priority open space opportunities within the County's urbanized areas are very limited. Most remaining large open space parcels are already planned for urban development. This situation is most evident in the urbanized

Northwest County, where the West Orange County Regional Parks Study of 1978 concluded that due to dwindling vacant land at prohibitively high cost, no unidentified opportunities for new regional parks exist. Still, there are existing regional parks (Los Coyotes, Mile Square, Craig, etc.) and trails within Northwest County. More importantly, there are also proposed regional parks (Los Alamitos Armed Forces Reserve Center, Olinda landfill site, etc.) and trail opportunities located there.

Due to the limited availability of large open space parcels as urban infilling proceeds in the County's urbanized areas, many design opportunities exist to create small-scale internal and perimeter open spaces in future development projects. Generous landscaping of these areas can enhance local ventilation, ameliorate local microclimates, reduce erosion, improve local wildlife habitat, and visually buffer high density land uses by instilling a sense of human privacy and garden ambiance. So too can small open spaces be optically magnified by deployment of reflective building exteriors. The use of mirrors or dark glass on buildings, for example, can optically magnify the space between buildings, reflect the sky and surrounding terrain, and optically multiply the number of adjacent trees. These effects can produce pleasing aesthetic and psychological benefits for man.

Owing to the lack of open space opportunities in urbanized areas, the County's open space program places high-priority on encouraging urban design that generates internal and peripheral open spaces, generous landscaping, variable building heights, angles, and setbacks, and the deployment of natural materials and/or reflective surfaces on building exteriors. These benefits shall be sought through a combination of consultation and coordination with incorporated cities, pursuing EIR mitigations, and requiring such enhancements in the site plan review process.

Though the opportunities for open space preservation are limited, the urbanized areas do deserve high-priority status because implementation efforts will require the cooperative efforts and interaction of many organizations, citizen groups, City and County governments, State and/or Federal agencies, and/or private land-owners.

D. Implementation Programs

1. Acquisition Program

a. Description:

The Acquisition Program implements the Open Space/Conservation Program Map, supports the other four components of this element and assists in the implementation of the goals, objectives and policies of the Recreation Element. Implementation of this program occurs either through the negotiation of fee or easement dedication of open space, followed by the expeditious handling/processing of open space dedications, through the purchase of open space lands, or through donation of open space lands.

b. Action:

- 1) Negotiate the location, shape, size, configuration, treatment, improvements, buffering and quality of title for open space dedications.
- 2) Direct the offer and acceptance of open space dedication as follows:
  - a) Historic easements, resource/preservation easements, and scenic easements without County maintenance responsibilities are to be dedicated and accepted when required by the County but no later than final subdivision maps for residential projects or building permits for non-residential projects.
  - b) When regional parks or regional open spaces are proposed to mitigate project impacts, the offer of dedication shall be made concurrent with the approval of the project or at such later time as approved by the Planning Commission or Board of Supervisors when the project is approved by that body. The boundaries of such offers may be refined through the tentative tract map process.
  - c) All other offers of dedication shall be made no later than recordation of a final map or application for building permits when no subdivision is required. A separate recorded instrument will be required to offer the dedication if no final map is required.
  - d) Fee dedication, recreation easements, and landscape maintenance easements requiring County maintenance are to be accepted based upon financial capability of the grantee (County or its designee).

- e) Offers of dedication are placed in a land bank inventory maintained by the EMA and reviewed annually by the Board of Supervisors for selection of offers of dedication to be accepted based on the financial capability of the grantee to assume ongoing operation and maintenance costs.
  - f) All offers of dedication shall be irrevocable.
- 3) Open space purchase opportunities are accomplished as follows:
- a) Purchase opportunities are identified in the Board approved 5 Year Capital Projects Program.
  - b) EMA requests GSA to undertake the necessary steps to acquire the open space.
  - c) GSA and EMA report to the Board of Supervisors requesting action.
  - d) The Board of Supervisors takes an action.
- 4) Open space donation opportunities are accomplished as follows:
- a) Donor offers to dedicate fee on easement lands not associated with any development entitlements.
  - b) EMA requests GSA to undertake the necessary steps to acquire the open space.
  - c) GSA and EMA report to the Board of Supervisors requesting action.
  - d) The Board of Supervisors takes an action.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agencies:
- 1) General Services Agency
  - 2) Environmental Management Agency
- f. Source of Funds:
- 1) Harbors, Beaches & Parks District
  - 2) County General Fund
  - 3) County Service Area Funds
  - 4) Developer Endowments
  - 5) Gifts



## 2. Development Program

### a. Description:

The Development Program provides for orderly improvement of landscape maintenance easements, recreation easements, and fee open space lands through design and construction of facilities to enhance their public use and enjoyment. No public access is anticipated in historic, resource preservation or scenic easements and, therefore, no development program is needed for these areas.

The emphasis of this program is to preserve recreation easements and fee open space lands largely in their natural state by limiting construction of improvements to trails, overlooks, and staging areas, thus avoiding more costly, maintenance-intensive improvements that are typical of regional parks.

Design and construction of open space improvements are undertaken in one of two ways:

- 1) Negotiation with developers to provide open space improvements as conditions of approval. In this context, developers design and construct improvements to County specifications and approval, and dedicate them to the County along with the open space.
- 2) County provides open space improvements with public funds or by coordinating donations of same. In this context, design and construction projects are prioritized and scheduled in the Board approved 5 Year Capital Projects Program and/or described in detail in annual updates of the EMA-Open Space/Recreation/Special Districts Program Office Program Report.

### b. Action:

- 1) In the case of developer provided improvements, negotiate necessary agreements with developers for the design and construction of open space improvements, and secure bonding to guarantee their installation.
- 2) In the case of County-installed improvements:
  - (a) Annually update 5 Year Capital Projects Program, and/or
  - (b) Annually update EMA-Open Space/Recreation/Special Districts Program Office Program Report.
  - (c) Coordinate with EMA-Regulation, Public Works and Planning for the design and construction of projects.

- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing. Annually update the 5 Year Capital Projects Program and the EMA-Open Space/Recreation/Special Districts Program Office Program Report.
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds: See Program No. 4, Financing Program.

### 3. Operation and Maintenance (O&M) Program

#### a. Description:

Consistent with the Development Program, which calls for very limited design and construction of facilities on open space lands, the O&M Program recognizes that many open space parcels are endowed with natural biotic and topographic resources that are largely self-maintaining. Since these natural resources possess significant aesthetic appeal and constitute the principal open space attractions in and of themselves, the O&M Program emphasizes a large degree of passive maintenance, allowing these resources to experience natural processes and to evolve through time with minimum interference, domestication, and construction of man-made attractions. This helps to minimize perpetual O&M costs per acre, allowing actual expenditures to be focused largely on maintenance of trails and related facilities.

The Board of Supervisors has mandated that acceptance of fee and easement open space dedications be closely geared to the County's ability to finance perpetual O&M costs. For this reason, revenue projections are completed with each annual update of the Board approved 5 Year Capital Projects Program, Operation and Maintenance Financing Plan, and the County Service Area budgets. These projections indicate the availability of future O&M funding for existing and new facilities. Revenues above and beyond current O&M needs indicate when new open space lands can be accepted and maintained in perpetuity.

Since the emphasis of the O&M Program is on minimal disturbance and maintenance of open space, per acre costs are minimized. This can permit acceptance of new dedications when possible during the annual review of the open space land bank referenced in the Acquisition Program.

#### b. Action:

- 1) Operate and maintain open space facilities with minimal disturbance of natural resources and at minimum per acre cost.
- 2) Annually update 5 Year Operation and Maintenance Financing Plan and revenue projections. Excess revenues above current O&M needs, and O&M gifts, will indicate ability of County to accept new open space dedications at time of annual land bank review.
- 3) Assume new O&M responsibilities, when possible, based on excess revenues, if any, detected in item 2 above.

#### c. New or Existing Program: Existing

- d. Implementation Schedule: Ongoing. Annually update of the Board approved 5 Year Capital Projects Program and the Operation and Maintenance Financing Plan.
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds:
- 1) Harbors, Beaches & Parks District Operating Fund
  - 2) County Service Area Funds
  - 3) Special Districts Augmentation Fund
  - 4) Gifts



#### 4. Financing Program

##### a. Description:

The Financing Program provides the financial planning basis for the acquisition, development, operation and maintenance of regional open space lands, including regional open space corridors, parks, harbors, beaches, riding and hiking trails and Class I off-road bikeways. This program includes a 5 Year Capital Projects Program and an Operation and Maintenance Financing Plan both updated annually by the Harbors, Beaches and Parks District (HBPD). This plan identifies the fiscal capacity of the HBPD to acquire, develop, operate and maintain new regional open space lands and facilities.

##### b. Action:

- 1) Annually update the Board approved 5 Year Capital Projects Program and the Operation and Maintenance Financing Plan.
- 2) Annually update the EMA-Director approved EMA-Open Space/Recreation/Special Districts Program Office Program Report.
- 3) Coordinate with EMA-Regulation, Public Works and Planning for the acquisition, development, operation and maintenance of open space and/or open space improvements.

c. New or Existing Program: Existing

d. Implementation Schedule: Ongoing

e. Responsible Agency: Environmental Management Agency

f. Source of Funds:

- 1) Harbors, Beaches & Parks District
- 2) Dana Point Harbor Tidelands Fund
- 3) Newport Bay Tidelands Fund
- 4) Sunset Beach Tidelands Fund
- 5) Off-Road Vehicle Fund
- 6) Federal Revenue Sharing Fund
- 7) Fish and Game Propagation Fund
- 8) Santa Ana River Environmental Enhancement Fund
- 9) Special District Augmentation Funds
- 10) User Fees
- 11) Concession Income
- 12) Grant Revenues
- 13) County General Fund
- 14) County Services Area Funds
- 15) Developer Endowments
- 16) Gifts

## APPENDIX 1

### OPEN SPACE DEDICATION DEFINITIONS

#### A. Overview

There are two types of open space dedications commonly utilized for the acquisition of open space: fee dedication and easement dedication. Dedications may be irrevocably offered for dedication and accepted at a later date or accepted at the outset. Following are definitions of the types of dedications used by the County. Fee dedication transfers ownership to the grantee while easement dedication does not transfer ownership.

#### B. Definitions

##### a. Fee Dedication:

Under fee dedication, the County or its designee receives clear title to the designated open space in perpetuity. Generally, the property-owner dedicates to the grantee or its designee fee title free of liens, encumbrances, assessments, fees, easements, leases (recorded or unrecorded) and taxes in a form suitable for recordation.

##### b. Easement Dedication:

###### 1) Resource Preservation Easement

The resource preservation easement (formerly either the open space or conservation easement) serves to protect natural resources (e.g., native and exotic vegetation, major ridgelines, bluffs, in their natural state), provides an open space transition area at the private/public property interface, and limits uses to those areas which are recreational in nature and improvements intended to retain open space character. Development of any form is prohibited within resource preservation easements.

###### 2) Scenic Easement

The scenic easement serves to restrict alterations by the underlying fee owner of the natural scenic and/or manufactured landform through grading operations, structural development, storage and/or placement of fill material, equipment and/or building materials, removal of or damage to vegetation (native and/or exotic), rock outcroppings, etc. Development within said easement areas shall be restricted to 15 percent of said easement area encumbering any individual lot and may include open fencing which does not constitute a visual barrier or wall impeding wildlife circulation, necessary flood control works and regional riding and hiking trails. Residential development of any form is prohibited within scenic easements.

3) Recreation Easement

A recreation easement is intended to provide a perpetual easement over an area designated for public use including regional and/or local riding and hiking trails and staging areas on privately-owned land.

4) Historical Preservation Easement

An historic preservation easement serves to protect historically and architecturally significant buildings and their settings. It operates like a resource preservation easement by protecting open space, biological resources, historic and scenic views, and the surroundings of culturally significant buildings and/or structures through restricted development rights. This easement also incorporates provisions of the exterior architectural facade easement by protecting the outside appearance of historically and architecturally significant buildings or structures.

5) Landscape Maintenance Easement

A landscape maintenance easement allows the County or its designated maintenance agency (County Service Area) to enter a property held in fee title by a landowner or his assigns and successors for the purpose of maintenance, repair, refurbishment and general care and upkeep of landscaping and irrigation systems.

## APPENDIX 2

### DESCRIPTION OF FINANCING PROGRAM FUNDS

#### Overview

The primary funding source for the acquisition, development, operation and maintenance of regional open space areas comes from the Harbors, Beaches and Parks District funds. These funds are derived from property tax revenue under a formula share allocation of the property tax base as adopted by State legislation. The following describes other funding sources that support the acquisition, development, operation and maintenance of regional and non-regional open space areas.

a. Dana Point Harbor Tidelands Fund:

This funding source is derived from revenues generated through fees and concessionaire rents at Dana Point Harbor. Most of the harbor is on State tidelands held in trust by the County; therefore, most rent and concession revenue is credited to the tidelands fund with remainder revenues credited to the Harbor, Beaches and Parks District.

b. Newport Bay Tidelands Fund:

This funding is derived from revenues generated by rents, concessions, off-shore moorings and guest slips.

c. Sunset Beach Tidelands Fund:

This funding is derived from oil lease revenues.

d. Off-Road Vehicle Fund:

The State of California levies a license fee for all off-road recreation vehicles a portion of which is received by the County and deposited in this fund.

e. Federal Revenue Sharing Fund:

Federal funds received by the County and earmarked for specific regional recreation projects.

f. Fish and Game Propagation Fund:

This fund is created by obtaining one-half of fines and forfeiture collected by the State for Fish & Game Code violations.

g. Santa Ana River Environmental Enhancement Fund:

Fund established by agreement between the Board of Supervisors (Flood Control District) and the Orange County Water District.



h. Special District Augmentation Funds:

This fund was established by State legislation (AB 8) to ease the financial burden on special districts created by limitations on property tax revenues resulting from Proposition 13.

i. User Fees:

These fees are established to offset the cost of operating and maintaining regional recreation facilities. Examples of such fees are day use parking fee, overnight camping fees and fees collected from coastal recreational facilities.

j. Concession Income:

Concessionaire leases may be offered on open space lands to provide basic public recreation services such as a golf course. Leases may also be offered for agricultural/horticultural purposes.

In addition, concessionaire leases which supplement the recreation intent of a particular regional recreational facility may be offered. Examples include concession stands at regional parks and stores and restaurants at the County harbors.

k. Grant Revenues:

State and Federal assistance programs provide grant funds to local governments for recreational projects meeting specific criteria.

## CHAPTER NINE: CULTURAL AND HISTORIC RESOURCES COMPONENT

### A. Overview

#### 1. Background

Cultural and historic resources are buildings, structures, objects, sites, and districts of cultural, historic, archaeological, historic architectural, historic preservation, and/or paleontological significance. For the purposes of this document, paleontological sites fall under cultural resources.

#### National:

Early efforts to preserve cultural and historic resources at the national level are exemplified by the action of the Mount Vernon Ladies' Association in the mid 1850's when they succeeded in preserving a nationally significant building threatened with demolition for a new resort hotel complex. The threatened building was George Washington's Mount Vernon.

Systematic federal involvement began with the passage of the Antiquities Act of 1906, designed to protect Indian ruins and relics in the Southwest. In 1935, the Historic Sites Act was passed by Congress to further federal preservation efforts, to consolidate them in the National Park Service of the Interior Department, to create some related jobs, and to establish the National Historic Landmarks program. Several projects were undertaken in Orange County.

In 1966, the keystone of contemporary federal preservation efforts became law, the National Historic Preservation Act (NHPA). This act established the current programs and funding. It delineated procedures and methods for both the environmental planning approach and the economic incentives approach to preservation. Both approaches are used in Orange County. For example, road, block grant, and redevelopment projects are reviewed via the environmental planning approach during project review. Similarly, many historic buildings are rehabilitated with the assistance of economic incentives; that is, special tax credits, low interest loans, and grants.

Numerous other laws have been passed (e.g., National Environmental Policy Act (NEPA)) and agencies have developed staff and procedures to deal with environmental regulations, primarily regarding archaeology. The biggest federal boost to historic preservation came with the Economic Recovery Tax Act of 1981 which established a 25 percent investment tax credit for rehabilitating a historic building.

#### State:

As with federal preservation efforts, State level preservation in California is focused in the parks department. State historic parks, such as the gold rush town of Columbia in the foothills of the Sierras, were first established in the late 1920s. In California, the State Historic Preservation Office (SHPO), which administers both federal and

State preservation programs in California, is organizationally within the State Department of Parks and Recreation.

Planning-related preservation activities are performed by a variety of State agencies, with principal local liaison from SHPO, and coordination with the State Office of Planning and Research and Department of Transportation. Since the mid-1960s, most financial incentives for preservation have been granted by the federal government through the SHPO to local governments and private entities in the form of grants or tax credits.

In Orange County, State involvement in cultural resources has several forms. The California Environmental Quality Act (CEQA) adopted in 1970 provides a mechanism for the consideration of cultural-historic resources as a part of the local environmental review process. Grants through the State Department of Parks and Recreation and SHPO have been received for historic surveys and acquisition and development projects. SHPO reviews private historic rehabilitation projects and, with other state agencies, participates in the environmental review process on projects such as roads.

#### Quasi-public:

The principal quasi-public preservation entity is the National Trust for Historic Preservation, established by Congress in 1949. In recent years, numerous "preservation" projects have been undertaken by private entities and local jurisdictions through a combination of federal funding sources (e.g., Housing and Urban Development, Revenue Sharing, NHPA, or federal tax credits) and local or private sources. The number of local preservation organizations in the U.S. has expanded tenfold in the last fifteen years. Many are partially grant funded. Numerous local governments have established cultural resource preservation commissions during this time to deal with increased public interest, environmental regulations, funding opportunities, and projects such as house museums, historic surveys, and preservation ordinances. In Orange County, there are over sixty organizations which promote the preservation and study of cultural and scientific resources in the County.

#### Local:

Orange County has a rich storehouse of cultural and scientific resources, beginning with prehistoric fossils and artifacts and carrying on through the historically and architecturally significant sites and buildings of the past two-hundred years. These resources are important for academic research and publications, for the education of school children and the general public, and for their cultural, social, and economic values.

Efforts to preserve these resources in Orange County started in 1897 when the first preservation organization in California, the Landmark's Club of Southern California selected as its first project the Mission San Juan Capistrano. The twentieth century has seen museum development (such as the Bowers), the flourishing of numerous historical societies,



the adoption of cultural environmental policies by the Board of Supervisors, the emergence of advocacy and fund-raising groups, and the undertaking of private historic rehabilitation projects as well as academic/research excavations.

Preservation of Orange County's significant archaeological, paleontological and historical resources in a manner that both preserves the site and is compatible with development is desirable. The County encourages early identification of significant resources in order that cultural resources can be given major consideration in land use planning. The initial identification and evaluation of significant resources is enhanced through the use of the County's computerized environmental mapping system: the Master Environmental Assessment (MEA). The MEA assists in the planning process by identifying areas that may or may not be sensitive to cultural-historic resources (or other important environmental concerns). The Board of Supervisors has taken a number of actions in the past ten years in this regard establishing goals and policies, many of which are the bases for this component. The principal actions are: Resolution 77-866 (Archaeo/Paleo Preservation Plan); Resolution 80-27 (Historical Commission); Resolution 82-583 (Historic Resources Management Plan); and Resolution 83-607 (Archives).

#### Conclusion:

Although both funding and policy direction emanate from the federal and State levels, most preservation activity has occurred at the local level. First, preservation activity focused on grants, then on compliance with environmental regulations. While these activities are still important parts of a cultural/historic resources program, the emphasis now is on financial incentives. While most of this work has been quasi-public/private, the focus in the past two years has shifted away from federal and State environmental regulation compliance and toward private sector utilization of the tax credits in rehabilitating historic buildings and private organization fund-raising.

## 2. Purpose

The primary purpose of the Cultural and Historic Resources Component is to present the substantive content of pertinent Board resolutions and other laws and policies which address archaeological, paleontological, and historic resources. This presentation assumes a goals - objectives -policies structure and is followed by a description of each implementation program. The Cultural and Historic Resources Component presents goals, objectives, policies and corresponding implementation programs. It clarifies existing Board direction, priorities, and resource management steps regarding the identification, evaluation, preservation, and development of cultural resources.



B. Goals, Objectives and Policies

1. Goal:

To raise the awareness and appreciation of Orange County's cultural and historic heritage.

Objectives:

- a. Facilitate and participate in activities that inform people about the social, cultural, economic, and scientific values of Orange County's heritage.
- b. Work through the Orange County Historical Commission in the areas of history, paleontology, archaeology, and historical preservation.

Policies:

- a. To stimulate and encourage financial support for projects in the public and private sector.
- b. To coordinate countywide programs and be the liaison for local organizations.
- c. To advise and aid the public and private sectors in meeting museum needs and finding funding sources for same.
- d. To stimulate and encourage research, writing and publication of articles on Orange County subjects.
- e. To develop and maintain a County archive for historically valuable records.
- f. To encourage and facilitate cooperative among local historical societies.

2. Goal:

To encourage through a resource management effort the preservation of the county's cultural and historic heritage.

Objectives:

- a. Promote the preservation and use of buildings, sites, structures, objects and districts of importance in Orange County through the administration of planning, environmental, and resource management programs.
- b. Take all reasonable and proper steps to achieve the preservation of archaeological and paleontological remains, or their recovery and analysis to preserve cultural, scientific and education values.

- c. Take all reasonable and proper steps to achieve the preservation and use of significant historic resources including properties of historic, historic architectural, historic archaeological, and/or historic preservation value.
- d. Provide assistance to County agencies in evaluating the cultural environmental impact of proposed projects and reviewing EIRs.
- e. Provide incentives to encourage greater private sector participation in historic preservation.

Policies:

The following policies addressing archaeological, paleontological and historical resources shall be implemented at appropriate stage(s) of planning, coordinated with the processing of a project application, as follows:

- a. Identification of resources shall be completed at the earliest stage of project planning and review such as general plan amendment or zone change.
- b. Evaluation of resources shall be completed at intermediate stages of project planning and review such as site plan review, subdivision map approval, or at an earlier stage of project review.
- c. Final preservation actions shall be completed at final stages of project planning and review such as grading, demolition, or at an earlier stage of project review.

I. Archaeological Resources

- (1) To identify archaeological resources through literature and records research and surface surveys.
- (2) To evaluate archaeological resources through subsurface testing to determine significance and extent.
- (3) To observe and collect archaeological resources during the grading of a project.
- (4) To preserve archaeological resources by:
  - (a) Maintaining them in an undisturbed condition, or
  - (b) Excavating and salvaging materials and information in a scientific manner.

II. Paleontological Resources

- (1) To identify paleontological resources through literature and records research and surface surveys.

- (2) To monitor and salvage paleontological resources during the grading of a project.
- (3) To preserve paleontological resources by maintaining them in an undisturbed condition.

### III. Historic Resources

- (1) To identify historic resources through literature and records research and/or on-site surveys.
- (2) To evaluate historic resources through comparative analysis, or through subsurface or materials testing.
- (3) To preserve significant historic resources by one or a combination of the following alternatives, as agreed upon by EMA and the project sponsor:
  - (a) Adaptive reuse of historic resource.
  - (b) Maintaining the historic resource in an undisturbed condition.
  - (c) Moving the historic resource and arranging for its treatment.
  - (d) Salvage and conservation of significant elements of the historic resources.
  - (e) Documentation (i.e., research narrative, graphics, photography) of the historic resource prior to destruction.

#### Goal:

To preserve and enhance buildings, structures, objects, sites and districts of cultural and historic significance.

#### Objectives:

- a. Undertake actions to identify, preserve, and develop unique and significant cultural and historic resources.
- b. Develop and maintain a County archive for historically valuable records, thereby promoting knowledge and understanding of the origins, programs, and goals of the County of Orange.

#### Policies:

- a. To pursue grants and innovative funding strategies for acquisition or development of significant properties.
- b. To develop, utilize, and promote effective technical conservation and restoration strategies.

- c. To appraise, collect, organize, describe, preserve, and make available County of Orange records of permanent, historical value.
- d. To serve as a research center for the study of County history.



C. Implementation Program\*

1. Advisory Bodies Program

- a. Description: Provide for and assist cultural resource advisory bodies.
- b. Action:
  - i. Provide policy direction and staff support for Orange County Historical Commission and Historical Records Commission.
  - ii. Provide policy direction and staff support for advisory bodies of a temporary nature such as task forces or ad hoc committees.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds:
  - 1) County General Fund
  - 2) Grants
  - 3) Harbors, Beaches and Parks District
  - 4) Private Donations

\*Listed in alphabetical order.

2. Archaeo/Paleo Certification Program

- a. Description: Administer program for certification of professionals in fields of archaeology and paleontology.
- b. Action:
  - i. Coordinate and perform review of resumes submitted by applicants.
  - ii. Present to Planning Commission for action.
  - iii. Maintain, update, and distribute list and resume file for client use.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agencies: 1) Environmental Management Agency  
2) Planning Commission
- f. Source of Funds: County General Fund

### 3. Archive Program

- a. Description: Develop and operate a County archive to preserve for research use those historically valuable materials which document the origins, activities, and achievements of the County.
- b. Action:
  - i. Provide facility for the storage and preservation of County records of historic significance.
  - ii. Develop and conduct inter-agency program to train records coordinators.
  - iii. Provide access to records for researchers and interested public.
- c. New or Existing Program: New
- d. Implementation Schedule: Ongoing
- e. Responsible Agencies: 1) General Services Agency-Records Retention Center  
2) Environmental Management Agency
- f. Source of Funds: 1) Grants  
2) County General Fund

4. County Historical Parks and Facilities Program

- a. Description: Provide for and administer a parks program which includes the preservation, restoration and use of cultural and historical properties; and promote the development and operation of County interpretive sites of cultural-historic significance.
- b. Action:
  - i. Coordinate efforts among County agencies to identify and acquire, as County parks, significant cultural resources.
  - ii. Plan, develop and operate County parks to enhance and preserve cultural resources.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds:
  - 1) Harbors, Beaches and Parks District
  - 2) Grants
  - 3) Leases



5. Countywide Historic Survey Program

- a. Description: Administer program for identification of historically significant properties. Promote and facilitate use of the survey material in related planning programs.
- b. Action:
  - i. Provide information and encouragement to local groups to expand the existing historic survey program.
  - ii. Provide contract administration, technical expertise, and data storage and retrieval for survey materials.
  - iii. Provide information to local planning departments to encourage surveying by cities.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds:
  - 1) Housing and Community Development Block Grants
  - 2) Other Grants
  - 3) Private Donations
  - 4) Private Development Fees
  - 5) Specific Public Projects

6. Cultural/Scientific and Historic Resource Management Program

- a. Description: Review public and private development proposals for their consideration of cultural resources and recommend measures to mitigate adverse effects, in accordance with California Environmental Quality Act (CEQA), Master Environmental Assessment and Board policy.
- b. Action:
  - i. Review/coordinate review of EIRs to address cultural resources and provide comments and recommendations to the lead agency/responsible office.
  - ii. Monitor the development process to ensure protection of cultural resources.
  - iii. Research and prepare cultural resource reports for County projects.
  - iv. Respond to inquiries from the public.
  - v. Maintain historic, archaeological, and paleontological files and maps.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds:
  - 1) County General Fund
  - 2) Private Donations
  - 3) Specific Public Projects (roads, parks)
  - 4) Project Developer Fees.

7. Information Clearinghouse Program

- a. Description: Provide information clearinghouse and technical advisory services regarding registration, design, finance, construction, management and use of cultural resources. These services are provided to a wide-spectrum clientele including County offices, private developers, planning and engineering firms, investment counselors; archaeologists, paleontologists, historians; and local jurisdictions (planning departments, redevelopment agencies).
- b. Action:
  - i. Gather information from a wide variety of cultural heritage resource persons/organizations and maintain files for their use.
  - ii. Respond to requests for information, distribute information, refer public inquiries to other sources and organizations.
  - iii. Provide speakers for a variety of conferences, seminars, workshops, and presentations.
  - iv. Maintain and distribute lists of consultants, professionals, and information sources to cultural heritage resource persons and others.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds:
  - 1) County General Fund
  - 2) Private Donations
  - 3) Project Developer Fees

8. Local Historical Organizations Liaison Program

- a. Description: Provide a communication network through the Orange County Federation of Historical Organizations, periodic newsletters, and meetings.
- b. Action:
  - i. Facilitate communication between County historical groups by gathering and disseminating information.
  - ii. Maintain detailed listing of all County historical organizations. Update and distribute listing regularly.
  - iii. Produce and distribute a quarterly newsletter.
  - iv. Organize and conduct semi-annual workshops/meetings on topics of historical interest.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds:
  - 1) County General Fund
  - 2) Private Donations
  - 3) Grants



9. Museum Function Assistance Program

- a. Description: Work with organizations and businesses on historical interpretive projects and fund-raising.
- b. Action:
  - i. Provide direction and encouragement to organizations in the area of natural history and history museum planning and fund-raising.
  - ii. Provide liaison with the Natural History Foundation, Old Courthouse Museum Society, and other organizations in their efforts to raise funds and public support for natural history and history museum facilities.
  - iii. Assist in coordination of storage space for the warehousing of archaeological and paleontological items.
  - iv. Apply for grants to provide funding for site specific interpretive centers in regional parks.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds:
  - 1) County General Fund
  - 2) Grants
  - 3) Private Donations

10. Plaque Program

- a. Description: Acknowledge significant historical places through their evaluation and designation, and through the placement of plaques and markers.
- b. Action:
  - i. Receive and review requests for placement of plaques.
  - ii. Research County history to determine sites eligible for plaques and significance of proposed plaques.
  - iii. Coordinate with local historical groups and special interest groups (e.g., to conduct research, order plaques, and plan dedication ceremonies).
  - iv. Maintain files on local historic sites and make information available to the public.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds: 1) County General Fund  
2) Private Donations

11. Preservation Incentives Program

a. Description: Encourage greater private sector participation in historic preservation through the development and operation of preservation incentives.

b. Action:

Work with County offices and others to investigate the feasibility and implementation of contemporary preservation incentives such as:

i. Utilization of the State Historic Building Code.

ii. Development of innovative financial incentives.

iii. Provision of zoning and density incentives.

iv. Establishment of facade easement mechanism.

c. New or Existing Program: New

d. Implementation Schedule: As feasible

e. Responsible Agency: Environmental Management Agency

f. Source of Funds: 1) Development Fees

2) County General Fund

3) Private Donations

4) Grants

12. Publications Program

- a. Description: Encourage, assemble, and disseminate information in the form of articles, brochures, and publications.
- b. Action:
  - i. Coordinate, research, publish and update a guide to local cultural heritage resources.
  - ii. Research, publish, and distribute informational brochures on specific County-owned sites (e.g., parks).
  - iii. Provide information to newspapers, radio, and television for their use in promoting the County's cultural heritage.
  - iv. Solicit and accept material for cultural resources research and maintain it for public use in a variety of publications.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds:
  - 1) Harbors, Beaches and Parks District
  - 2) County General Fund
  - 3) Grants
  - 4) Private Donations



13. Public Participation Program

- a. Description: Coordinate with and encourage participation of special interest groups and organizations in the resource management effort.
- b. Action:
  - i. Provide information to special interest groups and other clients regarding cultural resource programs at city, County, State, and federal levels.
  - ii. Encourage public participation in these programs through presentations, slide shows, and publications.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds: 1) County General Fund  
2) Specific Public and Private Project Fees

14. Special Activities Program

- a. Description: Coordinate countywide cultural activities of a unique or one-time only nature.
- b. Action:
  - i. Seek out and review proposals for special activities such as conferences, seminars, fairs and celebrations.
  - ii. Initiate and coordinate the presentation of such activities with local interest groups and County agencies.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds:
  - 1) Private Donations
  - 2) Harbors, Beaches and Parks District
  - 3) Grants



APPENDIX A





## APPENDIX A

### RESOURCES ELEMENT IMPLEMENTATION PROGRAMS

#### 1. General Plan Consistency Program

- a. Action: Continue review of public and private projects for consistency with the Orange County General Plan as required by State law (Government Code Section 65400 et seq.). The existing consistency review process will be updated in the Advance Planning Program Manual to reflect the Resources Element. EMA policy and procedures and memorandums of understanding (MOUs) between functions will also be revised and maintained.
- b. Discussion: This program satisfies the State law requirement that private and public projects must be consistent with the local government's General Plan in order to be approved. All public works projects, development projects, discretionary permits, capital improvement plans and other private and public agency proposals are reviewed for consistency. The consistency review process will be conducted in accordance with the Advance Planning Program Manual prepared by EMA.
- c. New or Existing Program: Existing
- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds: County General Fund

#### 2. Intergovernmental Coordination and Public Participation

- a. Action: Intergovernmental coordination and public participation are existing components of the Advance Planning Program. Intergovernmental and intragovernmental coordination will be improved through increased cooperation and contact with federal, State, regional, countywide, and Orange County agencies which impact or influence Resources Element implementation. For a list of related planning agencies, see Appendix B.
- b. Discussion: This program facilitates both intra- and intergovernmental coordination and citizen participation in order to promote a greater understanding of the County General Plan. Appropriate governmental agencies, organizations and citizens are provided an opportunity to review documents and provide input during the General Plan revision and amendment process. Appropriate agencies are also consulted regarding and involved in many of the implementation programs defined in this document.
- c. New or Existing Program: Existing

- d. Implementation Schedule: Ongoing
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds: County General Fund

3. Annual Report on County Resources

- a. Action: Prepare an annual report on the status of the County's resource management program as defined by the Resources Element implementation programs. This report would provide updated information on the county's resources and report on the status of implementation programs.
- b. Discussion: An annual report on the County's resource management program would provide an ongoing process to assess and monitor the effectiveness of the implementation programs contained in the Resources Element. The report would focus on natural resources, energy resources, and water resources since other annual reports are prepared for open space and cultural-historic resource management efforts in the EMA/Open Space/Recreation/Special Districts Program Office Program Report. In order to provide coordination with other County planning activities, the report will be submitted within a similar time frame as the Development Monitoring Report, generally the beginning of each year.
- c. New or Existing Program: New
- d. Implementation Schedule: Upon adoption of element.
- e. Responsible Agency: Environmental Management Agency
- f. Source of Funds: County General Fund

APPENDIX B





## APPENDIX B

### RELATED PLANNING AGENCIES

#### A. Overview

Intergovernmental coordination facilitates cooperative planning with federal, State, regional, private and Orange County agencies involved in Resources Element implementation or which influence the implementation of this element by their actions. This appendix identifies federal, State, regional, private and countywide agencies involved in General Plan implementation and their respective responsibilities.

#### B. Inter-Agency Coordination

##### 1. Federal Agencies

##### a. Interior Department (National Park Service):

- (1) Cooperative resource management
- (2) Recreation planning
- (3) National Historic Landmarks Program
- (4) National Historic Preservation Act (funding source)

##### b. Department of the Army (Corps of Engineers):

- (1) Flood control facilities
- (2) Major public works projects

##### c. Department of Agriculture:

- (1) Cooperative resource management (Forest Service, Soil Conservation Service)
- (2) Recreation planning

##### d. Fish and Wildlife Service:

- (1) Biological resource management

##### e. Department of Housing and Urban Development:

- (1) Development and infrastructure financing
- (2) Coordination of socio-economic data related to urban development

- (3) Revenue sharing
- (4) Block grants for Countywide Historic Survey Program
- f. Department of Defense (Tustin and El Toro Marine Corps Air Stations):
  - (1) Airport/land use compatibility
  - (2) Interface with County noise control and abatement programs
- g. Environmental Protection Agency:
  - (1) Environmental review process
  - (2) Air quality, hazardous waste, and water quality programs
- h. Internal Revenue Service (Economic Recovery Tax Act of 1981):
  - (1) Economic incentives (federal tax credits) for undertaking historical preservation activities

## 2. State Agencies

- a. State Office of Planning and Research:
  - (1) State clearinghouse for environmental impact reports (EIRs)
  - (2) Prepares guidelines for the preparation of mandatory elements of the General Plan (except the Housing Element)
  - (3) Coordinates and provides State assistance for land use planning
- b. State Resources Agency: Umbrella agency for State's major environmental agencies, including:
  - (1) California Coastal Commission:
    - (a) Coordinates implementation and administration of the Coastal Act in Orange County
  - (2) Department of Conservation:
    - (a) Mineral and geologic resource planning
    - (b) Administration of Williamson Act and open space programs
    - (c) Coordinates State agricultural land use and soil conservation programs

- (3) Department of Fish and Game:
  - (a) Cooperative fish and wildlife management
  - (b) Protection of special wildlife and ecological preserves
  - (c) Informs the public on the prudent use of wildlife species and their habitats
- (4) Department of Water Resources:
  - (a) Develop, protect, conserve and manage California's water resources
- (5) Department of Parks and Recreation:
  - (a) Administers State park system
  - (b) Cooperative recreation planning
  - (c) State Historic Preservation Office
- (6) California Coastal Conservancy:
  - (a) Land acquisition and management in conformity with the Coastal Act or a local coastal program (LCP)
- (7) California Air Resources Board:
  - (a) State air pollution control agency responsible for implementation of federal air pollution acts
- c. State Lands Commission:
  - (1) Manages and regulates all State-owned lands
- d. California Energy Commission:
  - (1) Responsible for development and conservation of California's energy resources
- e. State Water Resources Control Board:
  - (1) Responsible for water rights and water pollution control
  - (2) Enforces water quality standards and administers federal clean water laws



f. California Waste Management Board:

- (1) Waste management regulation and funding programs

g. Public Utilities Commission:

- (1) Regulates private utilities including energy utilities in the state
- (2) Lead agency on major energy facility (power plant) siting

3. Regional Agencies

a. Southern California Association of Governments (SCAG):

- (1) Coordination of regional water quality (208) and energy planning efforts
- (2) Clearinghouse for federally-funded projects
- (3) Regional Air Quality, Transportation, and Housing Plans
- (4) Transportation Improvement Plans
- (5) Regional Growth Policy

b. South Coast Air Quality Management District:

- (1) Air quality management activities

c. Water Districts:

- (1) Metropolitan Water District of Southern California
- (2) Orange County Water District
- (3) Coastal Municipal Water District
- (4) California Water Quality Control Board:
  - (a) Designates regional boards which are responsible for the maintenance of water quality

4. Private Organizations

a. Community/Homeowners' Associations

b. Public-interest organizations (e.g., League of Women Voters, Orange County Historical Society)

## APPENDIX C



## APPENDIX C

### MINERAL RESOURCES

#### BACKGROUND MATERIAL:

#### SMARA AND RELATED PROGRAMS

1. Surface Mining and Reclamation Act of 1975
2. Classification and Designation Guidelines for Mineral Resources
3. Special Report 143 Including Classification of Orange County Region
4. SMARA Maps



# 1. SURFACE MINING AND RECLAMATION ACT OF 1975



## SURFACE MINING AND RECLAMATION ACT OF 1975

(As amended by Senate Bill 1300, Nejedly - 1980 Statutes)

### Article 1. General Provisions

2710. This chapter shall be known and may be cited as the Surface Mining and Reclamation Act of 1975.

2711. (a) The Legislature hereby finds and declares that the extraction of minerals is essential to the continued economic well-being of the state and to the needs of the society, and that the reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety.

(b) The Legislature further finds that the reclamation of mined lands as provided in this chapter will permit the continued mining of minerals and will provide for the protection and subsequent beneficial use of the mined and reclaimed land.

(c) The Legislature further finds that surface mining takes place in diverse areas where the geologic, topographic, climatic, biological, and social conditions are significantly different and that reclamation operations and the specifications therefor may vary accordingly.

2712. It is the intent of the Legislature to create and maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations so as to assure that:

(a) Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses.

(b) The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment.

(c) Residual hazards to the public health and safety are eliminated.

2713. It is not the intent of the Legislature by the enactment of this chapter to take private property for public use without payment of just compensation in violation of the California and United States Constitutions.

2714. The provisions of this chapter shall not apply to any of the following activities:

(a) Excavations or grading conducted for farming or onsite construction or for the purpose of restoring land following a flood or natural disaster.

(b) Prospecting for, or the extraction of, minerals for commercial purposes and the removal of overburden in total amounts of less than 1,000 cubic yards in any one location of one acre or less.

(c) Surface mining operations that are required by federal law in order to protect a mining claim, if such operations are conducted solely for that purpose.

(d) Such other surface mining operations which the board determines to be of an infrequent nature and which involve only minor surface disturbances.

2715. No provision of this chapter or any ruling, requirement, or policy of the board is a limitation on any of the following:

(a) On the police power of any city or county or on the power of any city or county to declare, prohibit, and abate nuisances.

(b) On the power of the Attorney General, at the request of the board, or upon his own motion, to bring an action in the name of the people of the State of California to enjoin any pollution or nuisance.

(c) On the power of any state agency in the enforcement or administration of any provision of law which it is specifically authorized or required to enforce or administer.

(d) On the right of any person to maintain at any time any appropriate action for relief against any private nuisance as defined in Part 3 (commencing with Section 3479) of Division 4 of the Civil Code or for any other private relief.

(e) On the power of any lead agency to adopt policies, standards, or regulations imposing additional requirements on any person if the requirements do not prevent the person from complying with the provisions of this chapter.

(f) On the power of any city or county to regulate the use of buildings, structures, and land as between industry, business, residents, open space (including agriculture, recreation, the enjoyment of scenic beauty, and the use of natural resources), and other purposes.

2716. Any person may commence an action on his own behalf against the board or the State Geologist for a writ of mandate pursuant to Chapter 2 (commencing with Section 1084) of Title 1 of Part 3 of the Code of Civil Procedure to compel the board or the State Geologist to carry out any duty imposed upon them pursuant to the provisions of this chapter.

2717. The board shall submit to the Legislature on December 1st of each year a report on the actions taken pursuant to this chapter during the preceding fiscal year. Such report shall include a statement of the actions, including legislative recommendations, which are necessary to carry out more completely the purposes and requirements of this chapter.

2718. If any provision of this chapter or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of the chapter which can be given effect without the invalid provision or application, and to this end the provisions of this chapter are severable.

### Article 2. Definitions

2725. Unless the context otherwise requires, the definitions set forth in this article shall govern the construction of this chapter.

2726. "Area of regional significance" means an area designated by the board pursuant to Section 2790 which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in a particular region of the state within which the minerals are located and which, if prematurely developed for alternate incompatible land uses, could result in the permanent loss of minerals that are of more than local significance.

RES-C-3



2727. "Area of statewide significance" means an area designated by the board pursuant to Section 2790 which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in the state and which, if prematurely developed for alternate incompatible land uses, could result in the permanent loss of minerals that are of more than local or regional significance.

2728. "Lead agency" means the city or county which has the principal responsibility for approving a surface mining operation pursuant to this chapter or public agency assigned responsibility for approving a surface mining operation pursuant to Section 2771.

2729. "Mined lands" includes the surface, subsurface, and ground water of an area in which surface mining operations will be, are being, or have been conducted, including private ways and roads appurtenant to any such area, land excavations, workings, mining waste, and areas in which structures, facilities, equipment, machines, tools, or other materials or property which result from, or are used in, surface mining operations are located.

2730. "Mining waste" includes the residual of soil, rock, mineral, liquid, vegetation, equipment, machines, tools, or other materials or property directly resulting from, or displaced by, surface mining operations.

2731. "Operator" means any person who is engaged in surface mining operations, himself, or who contracts with others to conduct operations on his behalf, except a person who is engaged in surface mining operations as an employee with wages as his sole compensation.

2732. "Overburden" means soil, rock, or other materials that lie above a natural mineral deposit or in between mineral deposits, before or after their removal by surface mining operations.

2732.5. "Permit" means any authorization from, or approval by, a lead agency, the absence of which would preclude surface mining operations.

2733. "Reclamation" means the combined process of land treatment that minimizes water degradation, air pollution, damage to aquatic or wildlife habitat, flooding, erosion, and other adverse effects from surface mining operations, including adverse surface effects incidental to underground mines, so that mined lands are reclaimed to a usable condition which is readily adaptable for alternate land uses and create no danger to public health or safety. The process may extend to affected lands surrounding mined lands, and may require backfilling, grading, resoiling, revegetation, soil compaction, stabilization, or other measures.

2734. "State policy" means the regulations adopted by the board pursuant to Section 2755.

2735. "Surface mining operations" means all, or any part of, the process involved in the mining of minerals on mined lands by removing overburden and mining directly from the mineral deposits, open-pit mining of minerals naturally exposed, mining by the auger method, dredging and quarrying, or surface work incident to an underground mine. Surface mining operations shall include, but are not limited to:

- (a) Inplace distillation or retorting or leaching.
- (b) The production and disposal of mining waste.
- (c) Prospecting and exploratory activities.

### Article 3. District Committees

2740. In carrying out the provisions of this chapter, the board may establish districts and appoint one or more district technical advisory committees to advise the board. In establishing districts for these committees, the board shall take into account physical

characteristics, including, but not limited to, climate, topography, geology, type of overburden, and principal mineral commodities. Members of the committees shall be selected and appointed on the basis of their professional qualifications and training in mineral resource conservation, development and utilization, land use planning, mineral economics, or the reclamation of mined lands.

2741. The members of the committee shall receive no compensation for their services, but shall be entitled to their actual and necessary expenses incurred in the performance of their duties.

### Article 4. State Policy for the Reclamation of Mined Lands

2755. The board shall adopt regulations which establish state policy for the reclamation of mined lands in accordance with the general provisions set forth in Article 1 (commencing with Section 2710) of this chapter and pursuant to Chapter 4.5 (commencing with Section 11371) of Part 1 of Division 3 of Title 2 of the Government Code.

2756. State policy shall apply to the conduct of surface mining operations and shall include, but shall not be limited to, measures to be employed by lead agencies in specifying grading, backfilling, resoiling, revegetation, soil compaction, and other reclamation requirements, and for soil erosion control, water quality and watershed control, waste disposal, and flood control.

2757. The state policy adopted by the board shall be based upon a study of the factors that significantly affect the present and future condition of mined lands, and shall be used as standards by lead agencies in preparing specific and general plans, including the conservation and land use elements of the general plan, and zoning ordinances. The state policy shall not include aspects of regulating surface mining operations which are solely of local concern, and not of statewide or regional concern, as determined by the board, such as, but not limited to, hours of operation, noise, dust, fencing, and purely aesthetic considerations.

2758. Such policy shall include objectives and criteria for all of the following:

- (a) Determining the lead agency pursuant to the provisions of Section 2771.
- (b) The orderly evaluation of reclamation plans.
- (c) Determining the circumstances, if any, under which the approval of a proposed surface mining operation by a lead agency need not be conditioned on a guarantee assuring reclamation of the mined lands.

2759. The state policy shall be continuously reviewed and may be revised. During the formulation or revision of such policy, the board shall consult with, and carefully evaluate the recommendations of, the State Geologist, any district technical advisory committees, concerned federal, state, and local agencies, educational institutions, civic and public interest organizations, and private organizations and individuals.

2760. The board shall not adopt or revise the state policy unless a public hearing is first held respecting their adoption or revision. At least 30 days prior to such hearing, the board shall give notice of the hearing by publication pursuant to Section 6061 of the Government Code.

2761. (a) On or before January 1, 1977, and, as a minimum, after the completion of each decennial census, the Office of Planning and Research shall identify urban and urbanizing portions of the following areas within the state which are urbanized or are subject to urban expansion or other irreversible land uses which would preclude mineral extraction.



2773. The reclamation plan shall be applicable to a specific piece of property or properties, and shall be based upon the character of the surrounding area and such characteristics of the property as type of overburden, soil stability, topography, geology, climate, stream characteristics, and principal mineral commodities.

2774. (a) Every lead agency shall adopt ordinances in accordance with state policy which establish procedures for the review and approval of reclamation plans and the issuance of a permit to conduct surface mining operations, except that any lead agency without an active surface mining operation in its jurisdiction may defer adopting an implementing ordinance until the filing of a permit application. Such reclamation and permit ordinances shall establish procedures requiring at least one public hearing and periodic inspections of surface mining operations, and may include provisions for liens, surety bonds, or other security to guarantee reclamation in accordance with the reclamation plan. Such ordinances shall be periodically reviewed by the lead agency and revised, as necessary, in order to ensure that the ordinances continue to be in accordance with state policy.

(b) Lead agencies shall notify the State Geologist of the filing of an application for a permit to conduct surface mining operations.

(c) On request of a lead agency, the State Geologist shall furnish technical assistance to assist in the review of reclamation plans.

2774.3 (a) The board shall, in accordance with a time schedule, review lead agency ordinances which establish permit and reclamation procedures to determine whether each such ordinance is in accordance with state policy, and shall certify the ordinance as being in accordance with state policy if it adequately meets, or imposes requirements more stringent than, the California surface mining and reclamation policies and procedures established by the board pursuant to this chapter. The board shall complete on or before January 1, 1982, a review of all such ordinances adopted prior to November 1, 1981.

(b) Lead agencies shall submit ordinances adopted on or after November 1, 1981, which establish permit and reclamation procedures to the board for such determination and certification, and no such ordinance shall take effect until the board has certified that the ordinance is in accordance with state policy. Such review for certification shall be completed by the board within 60 days of the date of submittal to the board.

2774.5 (a) If, upon review of an ordinance, the board finds that it is not in accordance with state policy, the board shall communicate the ordinance's deficiencies in writing to the lead agency. Upon receipt of such a written communication, the lead agency shall have 90 days to submit a revised ordinance to the board for certification as being in accordance with state policy. The board shall review the lead agency's revised ordinance for certification within 60 days of its receipt. If the lead agency does not submit a revised ordinance within 90 days, the board shall assume full authority for reviewing and approving reclamation plans submitted to the lead agency until such time as the lead agency's ordinances are revised in accordance with state policy.

(b) If, upon review of a lead agency's revised ordinance, the board finds the ordinance is still not in accordance with state policy, the board shall again communicate the ordinance's deficiencies in writing to the lead agency. The lead agency shall have a second 90-day period in which to revise the ordinance and submit it to the board for review. If the board again finds that the revised ordinance is not in accordance with state policy or if no revision is submitted, the board shall assume full authority for reviewing and approving reclamation plans submitted to the lead agency until such time as the lead agency's ordinances are revised in accordance with state policy.

(c) On and after November 1, 1981, in any jurisdiction in which the lead agency does not have a certified ordinance, no person shall initiate a surface mining operation unless a reclamation plan has been submitted to, and approved by, the board. Any reclamation plan, approved by a lead agency under the provisions of a lead agency's ordinance which was not in accordance with state policy at the time of approval, shall be subject to amendment by the board or under the provisions of an ordinance certified by the board as being in accordance with state policy.

(d) Reclamation plans approved by the board pursuant to this section shall not be subject to modification by the lead agency at a future date but may be amended by the board. Nothing in this section shall be construed as authorizing the board to issue a permit for the conduct of mining operations.

2775. (a) An applicant whose request for a permit to conduct surface mining operations in an area of statewide or regional significance has been denied by a lead agency, or any person who is aggrieved by the granting of a permit to conduct surface mining operations in an area of statewide or regional significance, may, within 15 days of exhausting his rights to appeal in accordance with the procedures of the lead agency, appeal to the board.

(b) The board may, by regulation, establish procedures for declining to hear appeals that it determines raise no substantial issues.

(c) Appeals that the board does not decline to hear shall be scheduled and heard at a public hearing held within the jurisdiction of the lead agency which processed the original application within 30 days of the filing of the appeal, or such longer period as may be mutually agreed upon by the board and the person filing the appeal. In any such action, the board shall not exercise its independent judgment on the evidence but shall only determine whether the decision of the lead agency is supported by substantial evidence in the light of the whole record. If the board determines the decision of the lead agency is not supported by substantial evidence in the light of the whole record it shall remand the appeal to the lead agency and the lead agency shall schedule a public hearing to reconsider its action.

2776. No person who has obtained a vested right to conduct surface mining operations prior to January 1, 1976, shall be required to secure a permit pursuant to the provisions of this chapter as long as such vested right continues; provided, however, that no substantial changes may be made in any such operation except in accordance with the provisions of this chapter. A person shall be deemed to have such vested rights if, prior to January 1, 1976, he has, in good faith and in reliance upon a permit or other authorization, if such permit or other authorization was required, diligently commenced surface mining operations and incurred substantial liabilities for work and materials necessary therefor. Expenses incurred in obtaining the enactment of an ordinance in relation to a particular operation or the issuance of a permit shall not be deemed liabilities for work or materials.

A person who has obtained a vested right to conduct surface mining operations prior to January 1, 1976, shall submit to the lead agency and receive, within a reasonable period of time, approval of a reclamation plan for operations to be conducted after January 1, 1976, unless a reclamation plan was approved by the lead agency prior to January 1, 1976 and the person submitting the plan has accepted responsibility for reclaiming the mined lands in accordance with the reclamation plan.

Nothing in this chapter shall be construed as requiring the filing of a reclamation plan for, or the reclamation of, mined lands on which surface mining operations were conducted prior to January 1, 1976.



(1) Standard metropolitan statistical areas and such other areas for which information is readily available.

(2) Other areas as may be requested by the board.

(b) In accordance with a time schedule, and based upon guidelines adopted by the board, the State Geologist shall classify, on the basis solely of geologic factors, and without regard to existing land use and land ownership, the areas identified by the Office of Planning and Research, any area for which classification has been requested by a petition which has been accepted by the board, or any other areas as may be specified by the board, as one of the following:

(1) Areas containing little or no mineral deposits.

(2) Areas containing significant mineral deposits.

(3) Areas containing mineral deposits, the significance of which requires further evaluation.

(c) As it is completed by county, the State Geologist shall transmit such information to the board for incorporation into the state policy and for transmittal to lead agencies.

2762. (a) Within 12 months of receiving the mineral information described in Section 2761, and also within 12 months of the designation of an area of statewide or regional significance within its jurisdiction, every lead agency shall, in accordance with state policy, establish mineral resource management policies to be incorporated in its general plan which will:

(1) Recognize mineral information classified by the State Geologist and transmitted by the board.

(2) Assist in the management of land use which affect areas of statewide and regional significance.

(3) Emphasize the conservation and development of identified mineral deposits.

(b) Every lead agency shall submit proposed mineral resource management policies to the board for review and comment prior to adoption.

(c) Any subsequent amendment of the mineral resource management policy previously reviewed by the board shall also require review and comment by the board.

(d) Prior to permitting a use which would threaten the potential to extract minerals in an area classified by the State Geologist as an area described in paragraph (3) of subdivision (b) of Section 2761, the lead agency may cause to be prepared an evaluation of the area in order to ascertain the significance of the mineral deposit located therein. The results of such evaluation shall be transmitted to the State Geologist and the board.

2763. (a) Lead agency land use decisions involving areas designated as being of regional significance shall be in accordance with the lead agency's mineral resource management policies and shall also, in balancing mineral values against alternative land uses, consider the importance of these minerals to their market region as a whole and not just their importance to the lead agency's area of jurisdiction.

(b) Lead agency land use decisions involving areas designated as being of statewide significance shall be in accordance with the lead agency's mineral resource management policies and shall also, in balancing mineral values against alternative land uses, consider the importance of the mineral resources to the state and nation as a whole.

## **Article 5. Reclamation Plans and the Conduct of Surface Mining Operations**

2770. Except as specified in Section 2774.5 and 2776, no person shall conduct surface mining operations unless a permit is obtained from, and a reclamation plan has been submitted to, and approved by, the lead agency for such operation pursuant to this article.

2771. Whenever a proposed surface mining operation is within the jurisdiction of two or more public agencies, is a permitted use within the agencies, and is not separated by a natural or man-made barrier coinciding with the boundary of the agencies, the evaluation of the proposed operation shall be made by the lead agency in accordance with the procedures adopted by the lead agency pursuant to Section 2774. In the event that a dispute arises as to which is the lead agency, any public agency which is a party to the dispute may submit the matter to the board; and the board shall designate the public agency which shall serve as the lead agency, giving due consideration to the capability of such agency to fulfill adequately the requirements of this chapter and to an examination of which of the public agencies has principal permit responsibility.

2772. The reclamation plan shall be filed with the lead agency on a form provided by the lead agency, by any person who owns, leases, or otherwise controls or operates on all, or any portion of any, mined lands, and who plans to conduct surface mining operations thereon.

The reclamation plan shall include the following information and documents:

(a) The name and address of the operator and the names and addresses of any persons designated by him as his agents for the service of process.

(b) The anticipated quantity and type of minerals for which the surface mining operation is to be conducted.

(c) The proposed dates for the initiation and termination of such operation.

(d) The maximum anticipated depth of the surface mining operation.

(e) The size and legal description of the lands that will be affected by such operation, a map that includes the boundaries and topographic details of such lands, a description of the general geology of the area, a detailed description of the geology of the area in which surface mining is to be conducted, the location of all streams, roads, railroads, and utility facilities within, or adjacent to, such lands, the location of all proposed access roads to be constructed in conducting such operation, and the names and addresses of the owners of all surface and mineral interests of such lands.

(f) A description of and plan for the type of surface mining to be employed and a time schedule that will provide for the completion of surface mining on each segment of the mined lands so that reclamation can be initiated at the earliest possible time on those portions of the mined lands that will not be subject to further disturbance by the surface mining operation.

(g) A description of the proposed use or potential uses of the land after reclamation and evidence that all owners of a possessory interest in the land have been notified of the proposed use or potential uses.

(h) A description of the manner in which reclamation, adequate for the proposed use or potential uses will be accomplished, including:

(1) a description of the manner in which contaminants will be controlled, and mining waste will be disposed; and

(2) a description of the manner in which rehabilitation of affected streambed channels and streambanks to a condition minimizing erosion and sedimentation will occur.

(i) An assessment of the effect of implementation of the reclamation plan on future mining in the area.

(j) A statement that the person submitting the plan accepts responsibility for reclaiming the mined lands in accordance with the reclamation plan.

(k) Any other information which the lead agency may require by ordinance.

2777. Amendments to an approved reclamation plan may be submitted detailing proposed changes from the original plan. Substantial deviations from the original plan shall not be undertaken until such amendment has been filed with, and approved by, the lead agency.

2778. Reclamation plans, reports, applications, and other documents submitted pursuant to this chapter are public records, unless it can be demonstrated to the satisfaction of the lead agency that the release of such information, or part thereof, would reveal production, reserves, or rate of depletion entitled to protection as proprietary information. The lead agency shall identify such proprietary information as a separate part of the application. Proprietary information shall be made available only to the State Geologist and to persons authorized in writing by the operator and by the owner.

A copy of all reclamation plans, reports, applications, and other documents submitted pursuant to this chapter shall be furnished to the State Geologist by lead agencies on request.

2779. Whenever one operator succeeds to the interest of another in any incompleting surface mining operation by sale, assignment, transfer, conveyance, exchange, or other means, the successor shall be bound by the provisions of the approved reclamation plan and the provisions of this chapter.

#### **Article 6. Areas of Statewide or Regional Significance**

2790. After receipt of mineral information from the State Geologist pursuant to subdivision (c) of Section 2761, the board may by regulation adopted after a public hearing designate specific geographic areas of the state as areas of statewide or regional significance and specify the boundaries thereof. Such designation shall be included as a part of the state policy and shall indicate the reason for which the particular area designated is of significance to the state or region, the adverse effects that might result from premature development of incompatible land uses, the advantages that might be achieved from extraction of the minerals of the area, and the specific goals and policies to protect against the premature incompatible development of the area.

2791. The board shall seek the recommendations of concerned federal, state, and local agencies, educational institutions, civic and public interest organizations, and private organizations and individuals in the identification of areas of statewide and regional significance.

2792. Neither the designation of an area of regional or statewide significance nor the adoption of any regulations for such an area shall in any way limit or modify the rights of any person to complete any development that has been authorized pursuant to Part 2 (commencing with Section 11000) of Division 4 of the Business and Professions Code, pursuant to the Subdivision Map Act (Division 2 [commencing with Section 66410] of Title 7 of the Government Code), or by a building permit or other authorization to commence development, upon which such person relies and has changed his position to his substantial detriment, and, which permit or authorization was issued prior to the designation of such area pursuant to Section 2790. If a developer has by his actions taken in reliance upon prior regulations obtained vested or other legal rights that in law would have prevented a local public agency from changing such regulations in a way adverse to his interests, nothing in this chapter authorizes any governmental agency to abridge those rights.

2793. The board may, by regulation adopted after a public hearing, terminate, partially or wholly, the designation of any area of statewide or regional significance on a finding that the direct involvement of the board is no longer required.

#### **Article 7. Fiscal Provisions**

2795. (a) Notwithstanding any other provision of law, the first one million one hundred thousand dollars (\$1,100,000) of moneys from mining activities on federal lands disbursed by the United States each fiscal year to this state pursuant to Section 35 of the Mineral Lands Leasing Act, as amended (30 U.S.C. Sec. 191), shall be deposited in the Surface Mining and Reclamation Account in the General Fund, which account is hereby created, and may be expended, upon appropriation by the Legislature, for the purposes of this chapter.

(b) Proposed expenditures from the account shall be included in a separate item in the Budget Bill for each fiscal year for consideration by the Legislature. Each appropriation from the account shall be subject to all of the limitations contained in the Budget Act and to all other fiscal procedures prescribed by law with respect to the expenditure of state funds. On June 30 of each year any portion of the one million one hundred thousand dollars (\$1,100,000) specified in subdivision (a) for that fiscal year which is not appropriated by the Legislature shall be transferred to unappropriated surplus of the General Fund.

State Statutes  
Ch. 9, Div. 2, P.R.C.

Rev 12/80 JTA



## 2. CLASSIFICATION AND DESIGNATION GUIDELINES FOR MINERAL RESOURCES

## **PART II GUIDELINES FOR CLASSIFICATION AND DESIGNATION OF MINERAL LANDS**

### **PREFACE**

The Surface Mining and Reclamation Act of 1975, enacted as Chapter 9, Division 2 of the Public Resources Code, requires the State Mining and Geology Board to adopt state policies relative to mineral resource production and conservation.

Pursuant to this requirement the Board adopted the Guidelines for Classification and Designation of Mineral Lands following a June 30, 1978 public hearing held in Sacramento, California.



## CHAPTER 8. MINING AND GEOLOGY

## SUBCHAPTER 1. State Mining and Geology Board

Article II. GUIDELINES FOR CLASSIFICATION  
AND DESIGNATION OF MINERAL LANDS

**INTRODUCTION**—The purpose of these guidelines is to implement the Surface Mining and Reclamation Act of 1975 by providing direction to the State Geologist in carrying out mineral resource classification of lands in California that are threatened by uses which would be incompatible with or would preclude mining. In addition, these guidelines establish procedures by which the State Mining and Geology Board may designate mineral-bearing areas of statewide or of regional significance.

*Classification* is the process of identification of lands containing significant mineral deposits. *Designation* is the formal recog-

nition by the Board, after consultation with lead agencies and other interested parties, of areas containing mineral deposits of regional or statewide significance that should be protected from land uses incompatible with mineral extraction. The objective of the classification and designation processes is to insure, through appropriate lead agency policies and procedures, that mineral deposits of statewide or of regional significance are available when needed.

It is the Board's intention to review the guidelines from time to time and to revise them as necessary.

SECTION I. GUIDELINES FOR CLASSIFICATION  
OF MINERAL LANDS1. *Classification Criteria*

(a) In accordance with these guidelines and a schedule adopted by the Board, the State Geologist shall classify areas of the State threatened by land uses incompatible with, or that would preclude, mining. Such areas will be classified into Mineral Resource Zones (MRZ) and Scientific Resource Zones (SZ), as defined in this section, and shall be based on geologic and economic factors without regard to existing land use and land ownership. The areas to be studied and their order of study shall be specified by the Board in consultation with the State Geologist.

(b) To be considered significant for the purpose of the classification of mineral lands, a mineral deposit, or a group of deposits that can be mined as a unit must meet the following criteria of marketability and threshold value. In these guidelines the term *mineral deposits* denotes natural occurrences of rock or mineral materials in or on the earth's crust that are known to be economically minable and such rock or mineral materials that are not minable at present but which may come into such demand as to become economically minable in the foreseeable future. The term *mineral resources* is used herein as a collective term for all mineral deposits of a particular kind, or for mineral deposits in general. The size of mineral deposits for the purpose of evaluating marketability and threshold value shall include the amounts of naturally occurring rock or mineral material, of known or potential economic interest, that can be measured, indicated, or inferred by using available geologic and geophysical evidence in commonly accepted fashion. The terms *measured*, *indicated*, and *inferred* are to be used as defined by the U.S. Bureau of Mines and the U.S. Geological Survey in U.S. Geological Survey Bulletin 1450-A.

(1) **Marketability**—In determining marketability, mineral deposits shall be divided into two categories, those containing non-strategic and those containing strategic mineral

commodities. Unique or rare occurrences of rocks, minerals or fossils that are of outstanding scientific significance are not required to meet marketability criteria.

(i) *Non-strategic mineral commodities* are those which are available domestically and of which the United States imports less than 65 percent of its needs as reported annually by the U.S. Bureau of Mines. Deposits of mineral commodities in this category must be minable, processable, and marketable under the technologic and economic conditions that exist at present or which can be estimated to exist in the foreseeable future. The amount of mineral resources needed for periods of the foreseeable future (50 years) shall be projected using past consumption figures, with appropriate adjustments based upon anticipated changes in market conditions and mining technology.

(ii) *Strategic mineral commodities* are those that are in short domestic supply and important for national defense or the well-being of the domestic economy. For the purposes of these guidelines they are those mineral commodities of which the United States imports more than 65 percent of its needs, as reported annually by the U.S. Bureau of Mines, that are judged to be minable, processable, and marketable in the foreseeable future if non-domestic sources of supply are cut off.

(iii) *Foreseeable future*, as used in this paragraph and elsewhere in the guidelines is a time span of approximately 50 years. Because some of the conditions affecting extraction and marketability cannot be accurately projected 50 years into the future, conservative estimates shall be made in assessing whether a particular mineral resource can be mined, processed and marketed within the next 50 years.

(2) *Threshold value* is the projected value (gross selling price) of the first marketable product from an individual mineral deposit or from a group of deposits that can be operated as a unit, upon completion of extraction and any required mineral separation and processing. For those deposits which meet the marketability criteria, only those estimated to exceed the following threshold values in 1978—equivalent dollars shall be considered significant. These threshold values are intended to indicate in a general way the approximate minimum size of a mineral deposit that will be considered significant for classification and designation. They are not intended, nor in practice could they be, for use as precise cut off values. For some deposits in some areas larger or smaller value than those specified would be required for a marketable deposit. If for technological or other reasons one or more parts of a mineral deposit cannot meet the marketability criteria, those parts shall not be considered in estimating whether the deposit exceeds the threshold value.

(i) *Construction materials* (minimum value \$5,-000,000)—Mineral materials capable of being used in construction, such as sand and gravel or crushed rock, which normally receive minimal processing, commonly washing and grading, and for which the ratio of transportation costs to value of the processed material at the mine is high.

(ii) *Industrial and chemical mineral materials* (minimum value \$1,000,000)—Non-metallic mineral materials that normally receive extensive processing, such as heat or chemical treatment or fine sizing, and for which the ratio of transportation costs to value of the material at the mine is moderate or low. Examples of this category include:

- Limestone, dolomite, and marble except where used as construction aggregate
- Specialty sands
- Clays
- Diatomite
- Phosphate
- Coal, Lignite, or peat mined primarily as a raw material for chemicals such as montan wax
- Salines and evaporate such as borates and gypsum
- Feldspar
- Talc
- Building and dimension stone
- Asbestos
- Rock varieties producible into granules, rock flour, mineral wool, expanded shale, pozzolans and other similar commodities

(iii) *Metallic and rare minerals* (minimum value \$500,000)—Metallic elements and minerals, gemstones, and minerals that possess special properties valuable to science or industry. The ratio of transportation costs to the value of the material at the mine for this category is low. Examples include ores, deposits or crystals of:

- Precious metals (gold, silver, platinum)
- Iron and other ferro alloy metals (iron, tungsten, chromium, manganese)
- Base metals (copper, lead, zinc)
- Mercury
- Uranium and thorium except syngenetic deposits in shale
- Rare earths
- Minor metals including rubidium and cesium
- Gemstones and semi-precious materials

- Niobium, tantalum
- Optical grade calcite

(iiii) *Non-fluid mineral fuels* (minimum value \$1,000,-000)—Non-hydrothermal mineral fuels occurring in sedimentary rocks. Examples include:

- Coal
- Lignite
- Peat
- Organic shale
- Tar sand
- Uranium and thorium (syngenetic deposits in shale)

(iiiii) *Unique or rare occurrences of rocks, minerals, or fossils* that are of outstanding scientific significance (no threshold value).

## 2. Mineral Resource Zones (MRZ) and Scientific Resource Zones (SZ)

The following MRZ and SZ categories shall be used by the State Geologist in classifying the State's lands. The geologic and economic data and the arguments upon which each unit MRZ or SZ assignment is based shall be presented in the land classification information transmitted by the State Geologist to the Board.

(a) *MRZ-1* Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that there is little likelihood exists for their presence. This zone shall be applied where well developed lines of reasoning, based upon economic geologic principles and adequate data, demonstrate that the likelihood for occurrence of significant mineral deposits is nil or slight.

(b) *MRZ-2* Areas where adequate information indicates that significant mineral deposits are present or where it is judged that there is a high likelihood for their presence exists. This zone shall be applied to known mineral deposits or where well developed lines of reasoning, based upon economic geologic principles and adequate data, demonstrate that the likelihood for occurrence of significant mineral deposits is high.

(c) *MRZ-3* Areas containing mineral deposits the significance of which cannot be evaluated from available data.

(d) *MRZ-4* Areas where available information is inadequate for assignment to any other MRZ zone.

(e) *SZ* Areas containing unique or rare occurrences of rocks, minerals or fossils that are of outstanding scientific significance shall be classified in this zone.

## 3. Documentation and Transmittal of Mineral Lands Classification Data

(a) Areas assigned by the State Geologist to mineral resource zones shall be delineated on suitable maps of a scale adequate for use on lead agency general plan maps. These maps shall also show the boundaries of each permitting authority in the report area.

(b) A map at a convenience scale and a summary report showing the mineral lands classification for an entire county or, at the direction of the Board, major subdivisions of a county, or a major mineral district that includes portions of two or more counties, shall be prepared after classification is complete. Each map and report shall be submitted to the



Board which, after review and approval, shall transmit it to the appropriate lead agencies and make it available to other interested parties.

(c) Mineral land classification reports of regions containing *Construction Materials* classified *MRZ-2* shall include the following additional information for each such mineral commodity:

(1) The location and an estimate of the total quantity of each such construction material that is geologically available for mining in the report region. The limits of the region shall be considered to be the consumption areas for each potentially producible construction mineral commodity under consideration.

(2) An estimate of the total quantity of each such construction material that will be needed to supply the requirements of both the county and the marketing region in which it occurs for the next 50 years. The marketing region is defined as the area within which such material is usually mined and marketed. The amount of each construction material mineral resource needed for the next 50 years shall be projected using past consumption rates adjusted for anticipated changes in market conditions and mining technology. These estimates shall be periodically reviewed as provided in Section 1, Subsection 7.

#### 4. *Classification Priorities*

Potential mineral lands that are most likely to be converted to uses that are incompatible with mining or which would preclude mining shall be classified first. Where the risk of conversion to incompatible land uses is equal, those areas with mineral deposits of greatest statewide or regional significance shall be classified first. The potential for loss may be through the process of urbanization or through other irreversible uses of the mineral lands or of adjoining lands, with which mineral extraction would be incompatible.

#### 5. *Petitions for Mineral Lands Classification*

(a) Petitions may be brought before the Board by any individual or organization to classify mineral lands that are claimed to contain significant mineral deposits and which are claimed to be threatened by land uses incompatible with mining. Classification is a prerequisite to designation of regional or statewide significance. Once an area is classified as *MRZ-2*, or *SZ*, a petition may be submitted for designation consideration under Section II, Subsection 4. If a petitioner can supply sufficient geologic and economic data to support an *MRZ-2* or *SZ* classification by the State Geologist, he may also petition the Board to consider designation. It is expected that such a joint petition will include detailed information, and supportive data on the amounts and value of mineral deposits claimed to be *MRZ-2* or *SZ* and other information required under Section II, Subsection 4, *Petitions for Designation*. The threat to a mineral deposit may be due to incompatible uses of adjoining lands that would preclude mining, as well as to mineral lands themselves. Petitions submitted to the Board shall include the following information.

(1) The petitioner's name, mailing address, and interest (beneficial, jurisdictional, or other) in the area to be considered for classification.

(2) A map (USGS 7½' quadrangle or other appropriate map) showing the boundaries of the area the petitioner wishes to be classified.

(3) A description of the significant mineral deposits claimed to occur within the area described, including sufficient geologic and economic data to support the claim that the mineral deposits are significant as defined in these guidelines.

(4) The imminency of the threatened change, if any, in the use of land containing the claimed significant mineral deposits to a use which would prevent their mining. The petitioner should be prepared to supply full documentation if requested.

(5) The name and mailing address of each recorded land owner and each recorded lessee in and adjoining the area described.

(b) The State Geologist shall make an evaluation of the data submitted in the petition as to its accuracy and sufficiency and determine if the area can be classified on the basis of both submitted and other readily available information. A recommendation shall be then submitted to the Board concerning:

(1) The urgency of the requested classification.

(2) The sufficiency of the submitted and other readily available data as a basis for classification, and the scope of any additional investigation required.

(3) An estimation of the time required to classify the area.

(c) Following the State Geologist's report, the Board shall determine the priority for classification of the land described in the petition in relation to other areas in the State's mineral lands classification program. Classification of the area will then proceed according to its assigned priority.

#### 6. *Lead Agency Responsibilities*

(a) Within 12 months of receiving the mineral lands classification map and report, every lead agency shall, in accordance with state policy, develop and adopt mineral resource management policies to be incorporated in its general plan which will:

(1) Recognize the mineral classification information, including the classification maps, transmitted to it by the Board and include the classification maps in its general plan.

(2) Emphasize the conservation and development of identified significant mineral deposits.

(b) Every lead agency shall submit its proposed mineral resource management policies to the Board for review and comment prior to adoption.

(c) Any subsequent amendment of the mineral resource management policies previously reviewed by the Board shall also require review and comment by the Board.

(d) Prior to permitting a use which would threaten the potential to extract minerals classified by the State Geologist as *MRZ-3*, the lead agency may cause to be prepared an evaluation of the area in order to ascertain the statewide or regional significance of the mineral deposits known or inferred to be located therein. The results of such an evaluation shall be transmitted to the State Geologist and to the Board for review and comment.



## 7. Periodic Review of Classified Lands

(a) After a period not to exceed 10 years following transmittal of mineral land classification information to lead agencies, the State Geologist shall review the information to determine whether:

- (1) A reclassification of the area is necessary.
- (2) The projected requirements for *Construction Materials* (Subsection 3c of Section I of these guidelines) for 50 years

should be revised. The State Geologist shall report the results of such reviews to the Board together with his recommendations.

(b) The Board may direct the State Geologist to reexamine mineral lands already classified on the basis of his recommendation, or for other reasons. Any resulting reclassification shall be treated in the same manner as the original classification, and employ the same marketability and threshold criteria. The approximate span of time indicated above as being "the foreseeable future" for purposes of estimating marketability shall begin anew at time of reclassification.

## SECTION II. PROCEDURES FOR DESIGNATION OF LANDS CONTAINING SIGNIFICANT MINERAL DEPOSITS

### 1. Designation Criteria

Areas to be considered for designation by the Board will contain one or more mineral deposits of statewide or regional significance. Ordinarily, classification of an area as MRZ-2 by the State Geologist will constitute adequate evidence that an area contains significant mineral deposits, but other data shall be considered by the Board in determining the significance of specific mineral deposits and the desirability of designation.

### 2. Designation Procedures

(a) Upon receipt from the State Geologist of a mineral lands classification map and report delineating one or more areas classified as MRZ-2 or SZ, the Board shall:

- (1) Review the map and report to determine the sufficiency of the submitted data as a basis for designation, and request such additional information as may be required for the State Geologist or other sources.
- (2) Determine the need for, and the priority of, designating the MRZ-2 and SZ areas, taking into consideration the importance of the mineral deposits to the State or region thereof and the imminency of any threatened land use changes that would be incompatible with mineral extraction.
- (3) Notify the appropriate lead agencies of the decision to consider designation of one or more mineral resource areas within their jurisdiction.
- (4) Set a date and place for a public hearing to consider the areas which the Board proposes to designate as containing mineral deposits of statewide or regional significance. If practicable, the public hearing shall be held in or near the county in which the area proposed for designation occurs.
- (5) Notify all affected agencies and parties having an interest in the lands considered for designation.

(b) At the public hearing to consider proposed designations, the Board shall seek the recommendations of concerned federal, state and local agencies, educational institutions, civic and public interest organizations, and private organizations and individuals in the identification of mineral deposits of

statewide or of regional significance. Such review and comment should address:

(1) The adequacy of the mineral land classification data transmitted by the State Geologist and of any additional data transmitted by the Board, which together will constitute the principal basis for designation.

(2) Additional data bearing on the presence and marketability of mineral deposits proposed to be of statewide or of regional significance in the area under consideration.

(3) The need, amount and location of mineral deposits of regional significance, namely *Construction Materials* as defined in Section 1, Subsection 1b of these guidelines, that should be designated to provide for the needs of the region for 50 years.

(4) The need for the proposed designation of each mineral deposit of statewide significance, namely, *Industrial and Chemical Mineral Materials, Metallic and Rare Minerals, Non-fluid Mineral Fuels, and Rocks, Minerals and Fossils of Outstanding Scientific Significance*, as defined in Section 1, Subsection 1b of these guidelines. Ordinarily, such deposits are uncommon or rare, and economically significant occurrences warrant designation. However, some types, such as low grade limestone, low grade clays and other rock varieties that may be processed into valuable mineral products are often present in such large quantities that designation would be warranted only where special circumstances exist. Such circumstances might include proximity of a mineral deposit to markets, transportation, energy sources, or to other raw materials with which they could be combined to produce more valuable products.

(5) The existing uses of the areas proposed for designation and the future uses of these areas adopted by local agencies.

(6) Values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment.

(c) Following the public hearing, the Board may designate to be of statewide or regional significance, and include in state policy, all or part of the areas classified as MRZ-2 or SZ. The designation shall specify the following:

- (1) The boundaries of the designated area.



(2) The mineral deposits of statewide or of regional significance contained in each designated area and an estimate of the amount of each mineral commodity that is available for mining under present or foreseeable technologic, economic and land use conditions, for MRZ-2 areas, or a description of the materials of scientific value in the SZ area.

(3) The reason that each designated area is of significance to the State or region, the advantages to the State or region that might be achieved from the extraction of the minerals of the area, and the adverse effects that might result from premature development to land uses which would preclude mining.

(4) The time limit, if any, for the designation.

(5) The specific goals and policies to protect the areas containing mineral deposits designated to be of statewide or regional significance from premature development to uses which would preclude mining, or to uses with which mining would be incompatible.

(6) Lead agencies having jurisdiction over the area.

### 3. *Lead Agency Designation Responsibilities*

(a) Upon designating an area containing significant mineral deposits the Board will transmit a report of its action to the affected lead agencies. The report will include a map of the designated areas at a scale suitable for general plan purposes.

(b) Every lead agency within 12 months of the designation of an area of statewide or regional significance within its jurisdiction, shall:

(1) Recognize and include in its general plan the designated areas of statewide and regional significance transmitted to it by the Board.

(2) Develop and adopt policies for the management of land use of areas classified MRZ-2 or SZ and designated by the Board as areas of statewide and regional significance to protect those areas from premature development incompatible with mining.

(3) Emphasize the conservation and development of mineral deposits designated by the Board to be of statewide or regional significance.

(c) Prior to the adoption of mineral resource management policies, lead agencies shall submit them to the Board for review and comment. The Board shall make its comment within 60 days of receipt of the proposed policies. Any subsequent amendment to these resource management policies shall also require Board review and comment.

(d) The Board shall continuously monitor local government implementation of its mineral resource management policies for designated areas.

### 4. *Petitions for Designation*

(a) Prior to permitting a use which would threaten the potential to extract minerals classified by the State Geologist as MRZ-2 or SZ but not yet designated, the lead agency may petition the Board for a designation hearing.

(b) Petitions for a designation hearing may also be brought before the Board by any other party provided that the Board has received and approved land classification information that indicates that the area in question is classified MRZ-2 or SZ and that the Board has not yet considered designation. Petitions submitted to the Board shall include the following information.

(1) The petitioner's name, mailing address and interest (beneficial, jurisdictional, or other) in the area to be considered for designation.

(2) A map (USGS 7½' quadrangle or other appropriate map) showing the boundaries of the MRZ-2 or SZ area the petitioner wishes to be designated.

(3) The reasons for requesting designation.

(4) The name and mailing address of each recorded land owner and each recorded lessee in and adjoining the area described. The Board shall then evaluate the data submitted in the petition as to its accuracy and sufficiency. If the Board finds that the petition contains sufficient information and arguments to require a public hearing, then the Board shall schedule such a hearing and proceed as outlined in this section.

### 5. *Termination of Designation Status*

(a) The status of mineral lands previously designated to be of statewide or regional significance may be terminated, either partially or wholly, by the Board on a finding that the protection afforded by designation is no longer necessary. In making this finding the Board shall consult with affected lead agencies as to the desirability of terminating designation. Such a finding may result from, but not be limited to, the following reasons:

(1) Depletion of the mineral deposit or deposits within the designated area.

(2) The mineral deposit or deposits within the designated area are shown to be in excess of quantities required for present or foreseeable future statewide or regional needs.

(3) Ending of the time limit, if any, for the designation to be in force.

(b) Prior to making such a finding, the Board shall hold a public hearing. If practicable it shall be held in or near the county in which the designated areas occur.

(c) Petitions may be brought before the Board to terminate the designated status of mineral lands. Petitions submitted to the Board shall include the following information:

(1) The petitioner's name, mailing address and interest (beneficial, jurisdictional or other) in the petitioned area.

(2) A map (USGS 7½' quadrangle or other appropriate map) and legal description of the petitioned area.

(3) Reference shall be made to the specific Board action which designated the area.

(4) The reasons and supporting data as to why direct Board involvement is no longer necessary. The Board shall then evaluate the data submitted in the petition as to its

accuracy and sufficiency. If the Board finds that the petition contains sufficient information and arguments to require a public hearing on termination, then the Board shall schedule such a hearing and proceed as outlined in this section.

## 6. CEQA Compliance

The designation by the Mining and Geology Board of mineral bearing areas as being of regional or statewide significance is an

activity which requires compliance with the California Environmental Quality Act (CEQA), and an environmental impact report will be required if the designation may have a significant effect on the environment. The Board will have the responsibility for preparing any environmental documents which may be required with the assistance of the State Geologist and the Division of Mines and Geology (Adopted 1/3/79).

# SECTION III. GUIDELINES FOR CLASSIFICATION-DESIGNATION PETITIONS (Adopted 7/12/79)

## 1. Introduction

The State Mining and Geology Board recognizes the mineral potential of non-urban areas in California such as the California Desert Conservation Area and other federal lands in the state. However, the Board is constrained in pursuing a comprehensive classification-designation program in these areas because of the urban orientation of the Surface Mining and Reclamation Act and restrictions in the 1978 Budget Act.

The Surface Mining and Reclamation Act, Section 2761, provides that the State Geologist shall classify for mineral potential, areas identified by the Office of Planning and Research as urban and urbanizing, and such other areas as may be specified by the Board. The 1978 Budget Act requires that "positions engaged in the classification of mineral resource areas pursuant to Section 2761 of the Public Resources Code shall be used principally for the classification of such areas within urban and urbanizing portions of the State that are subject to urban expansion or other irreversible land uses".

A petition process is provided in the Board's "Guidelines for Classification and Designation of Mineral Lands" as a means of bringing to the Board's attention significant mineral deposits which have not yet been classified in both urban and non-urban areas that are subject to irreversible land uses incompatible with mining.

However, petitions for mineral deposits in non-urban areas submitted pursuant to the guidelines may not be acted upon in a timely fashion due to funding and staffing constraints. Rather than place a moratorium on petitions from these areas, the Board developed criteria to guide it in accepting petitions and establishing their priority for classification.

These criteria also serve as a guide to potential petitioners in assessing whether a petition for a particular deposit may be acceptable to the Board and also as a guide in preparing petitions. The State Mining and Geology Board urges petitioners to review the petition process closely in the context of the classification-designation process.

It should be recognized that petitioning does not create an instantaneous action, but rather starts in motion the classification-designation process which requires actions by the State Geologist, the Mining and Geology Board, and lead agencies prior to a final land-use decision.

The Board shall notify affected lead agencies upon formal acceptance of a petition for classification and provide them with

a copy of the petition. The Board shall also notify lead agencies of each petition's assigned priority for classification.

## 2. Criteria for Consideration of Petitions

(a) The State Mining and Geology Board shall be guided in its consideration of petitions for classification-designation by the following criteria:

(1) The petitioned mineral deposit must meet the threshold value and other criteria for classification as MRZ-2 as specified in Section 1, paragraphs 1 (Classification Criteria) and 2 (Mineral Resource Zones and Scientific Zones) of the "Guidelines for Classification and Designation of Mineral Lands".

(2) The petitioned deposit must be threatened by a land use incompatible with mining which is of such imminency that Board action is required. The threat must be one that could be alleviated by a lead agency responsible for making land-use decisions pursuant to SMARA and Board guidelines.

(3) The petitioner must supply sufficient geologic and economic data with each petition to enable the State Geologist to classify the mineral deposit areas that are the subject of the petition. If the petitioner desires that deposits in areas classified as MRZ-2 by the State Geologist be designated by the Board as being of statewide or regional significance, then the petitioner must supply the environmental information required by the California Environmental Quality Act. Information submitted with the petitions will be of public record.

(4) Petitions will require a third party review of the submitted mineral resource data to determine:

(i) If the submitted data is adequate, and

(ii) If the deposit meets the threshold value and other criteria required to qualify for classification as MRZ-2.

Petitions will also require a third party analysis of the land-use threat, its incompatibility with mining, and its imminency. The reviewers, who shall be funded by the petitioner, shall be selected by and report to the Board and State Geologist.

(b) A petition form is provided in Appendix C.



### 3. *Priority Considerations*

(a) After acceptance of a petition by the Board, its priority for classification shall be established in consultation with the State Geologist. The Board shall be guided by the following considerations:

(1) Petitions for mineral deposits in urban and urbanizing areas that require market or area surveys (i.e. construction materials) shall be considered in the context of priorities

established by the Board for the Division of Mines and Geology's five-year mineral lands classification program. See Appendices A and B for the priorities of this program.

(2) Petitions for specific mineral deposits in non-urban areas which do not require market or area surveys (i.e. industrial and chemical mineral materials, metallic and rare minerals, and non-fluid mineral fuels) shall be assigned a priority by the Board for consideration for spot classification and designation on the basis of their apparent economic significance to the state and urgency for classification.

3. SPECIAL REPORT 143  
INCLUDING CLASSIFICATION OF  
ORANGE COUNTY REGION



# **SPECIAL REPORT 143**

## **PART III**

### **CLASSIFICATION OF SAND AND GRAVEL RESOURCE AREAS, ORANGE COUNTY-TEMESCAL VALLEY PRODUCTION-CONSUMPTION REGION**

By

Russell V. Miller  
Richard Corbaley

With the Assistance of

Thomas P. Anderson  
Susan Kohler  
Ralph C. Loyd  
Marjorie M. Bushnell

Under the Direction of James F. Davis and Paul K. Morton

1981

CALIFORNIA DIVISION OF MINES AND GEOLOGY  
1416 Ninth, Room 1341  
Sacramento, CA 95814

## FORWARD

By James F. Davis

This report, "Classification of Sand and Gravel Resource Areas—Orange County-Temescal Valley Production Consumption Region," is submitted as the second analysis by the California Division of Mines and Geology (CDMG) to the State Mining and Geology Board for transmittal to the local governments which regulate land use in this region. The report has been developed under the Surface Mining and Reclamation Act of 1975, which was enacted by the State Legislature to assure adequate mined land reclamation and mineral resource conservation under the auspices of the Mining and Geology Board and CDMG.

The Mining and Geology Board enacted Guidelines in June 1978 to be employed by the CDMG in its mineral resource classification. This report embodies the intent of those directives. The undertaking is of signal importance in economic geology, because it deals with very specific mineral resource conservation issues in an area of intensive land use.

## PREFACE

The Los Angeles metropolitan area, with a population of nearly 10 million people, is the largest urbanized area in California. This region includes the southern part of Los Angeles County and parts of San Bernardino, Riverside, and Orange counties. Although substantial parts of the Los Angeles area have been developed, wide-spread urbanization is still occurring at a rapid rate.

In any metropolitan or rural region undergoing urban development, it is of considerable importance that adequate supplies of mineral commodities be readily available. Minerals used in construction, particularly sand, gravel, or stone used in concrete, must be available from the region in sufficient quantities and at reasonable costs. For many years, the Los Angeles area has been fortunate in this respect: adequate quantities of low-cost aggregate materials, chiefly sand and gravel, have been available locally. However, as more and more land in a region becomes urbanized, nearby sand and gravel deposits suitable as sources of low-cost aggregate tend to be either depleted by mining or lost to competing land uses.

The principal objective of this project is to classify land in the Los Angeles area into Mineral Resource Zones based on guidelines adopted by the California State Mining and Geology Board. This classification is mandated by the Surface Mining and Reclamation Act of 1975. The purpose of the classification is to assist the State Mining and Geology Board in designating lands that are needed by the region for their mineral content.

Classification information will be submitted to the State Mining and Geology Board in six parts, one for each of the six production-consumption regions that have been identified in the greater Los Angeles metropolitan area. An introductory section describing the background, purpose, and scope of the overall project and one section on the classification of each of the six production-consumption regions are being published as they are completed as parts of California Division of Mines and Geology Special Report 143. Each of the six parts classifying production-consumption regions will include maps showing the locations of significant sand and gravel deposits and an explanatory text with tables and charts that present data on population, production, aggregate consumption, future requirements, and estimates of aggregate resources.

Part I, the introductory section, and Part II, which explains the classification of sand and gravel resource areas in the San Fernando Valley Production-Consumption Region, were published in a single volume. Part I is also being published as a separate volume. The present volume, which focuses on the classification of sand and gravel resource areas in the Orange County - Temescal Valley Production-Consumption Region, is Part III of Special Report 143.

The reader may wish to refer to "Aggregates in the Greater Los Angeles Area," California Division of Mines and Geology Special Report 139, which describes and evaluates the significance, uses, prices, marketing, transportation, supply, and other factors that relate to the aggregate industry of the greater Los Angeles metropolitan area.

## EXECUTIVE SUMMARY

Based upon the projected population increase and the predicted per capita consumption rates, approximately 840 million tons of aggregate will be required to satisfy demand in the Orange County-Temescal Valley Production-Consumption Region to the year 2030. In the event of massive reconstruction following a disaster, this total could double to 1,680 million tons (see Figure 3.14). Of these projected amounts, about half of the material must meet the requirements of Portland cement concrete aggregate.

*Current reserves* (aggregate materials believed to be acceptable for commercial use that exist within property owned or leased by an aggregate producing company and for which permission allowing extraction and processing has been granted by the proper authorities) total approximately 257 million tons, of which an estimated 182 million tons are suitable for use in Portland cement concrete. Based upon present rates of production, these reserves will be depleted in a little more than two decades. The highest predicted demand for construction material in the next 50 years will be in the southern Orange County area. This area is not only the farthest from the production districts of the adjacent P-C region, but is also a significant distance from the Mayhew-Coldwater fan, which includes 66 percent of the available reserves within the Orange County-Temescal Valley Production-Consumption Region.

*Non-permitted resources* (potentially usable aggregate materials that may be mined in the future but for which no use permit allowing extraction has been granted, or for which development has not been definitely established to be feasible based upon current technology or economic conditions) total approximately 1,200 million tons. It will be necessary to bring into production almost half of these non-permitted resources to meet the predicted need for the next 50 years, unless alternative sources are relied upon (see Figure 3.14).

The alternative sources, in order of their estimated feasibility, are: 1) aggregate producers in the adjacent production-consumption regions; 2) alluvial deposits presently unavailable because of ordinances; 3) sedimentary bedrock deposits; 4) sources for crushed rock; and 5) offshore sediments.

1. Although a significant percentage of aggregate is now shipped into the Orange County-Temescal Valley Production-Consumption Region from adjacent regions, the danger of relying on imported aggregate to cover the gap between supply and demand is that the adjacent production-consumption regions (except for the San Bernardino Production-Consumption Region) are also facing reserve-supply short falls over the next 50 years; the San Bernardino Production-Consumption Region has about a 65-year supply of reserves. The enormous non-permitted resources of almost 20 billion tons in these adjacent production-consumption regions represent a long term, but expensive, alternative solution.
2. The use of the aggregate in Orange County underlying Caspers Regional Park and the sand beneath Featherly Park and portions of the Greenriver Golfcourse would require major land-use changes, but do represent potential sources of aggregate of moderately well-known quantity and quality.
3. The sedimentary bedrock deposits are not nearly as well assessed as are the modern alluvial deposits. Much testing and evaluation will need to be done to discover aggregate deposits of marketable quality and quantity in the bedrock.
4. There are large quantities of bedrock available for crushing and processing as aggregate in and near the Orange County-Temescal Valley Production-Consumption Region. Most of these rocks are either within the Cleveland National Forest in Orange County or in the area bordering Temescal Wash in Riverside County.
5. The development of the sand and gravel deposits offshore present a totally different set of problems. Even if the feasibility of mining these deposits were proven, there would probably be a protracted period of development necessary for what appears to be a limited supply.



Twenty-two aggregate resource sectors have been delineated in the Orange County-Temescal Valley Production-Consumption Region based on lithologic continuity and geographic separation. These 22 resource sectors are listed on Table 3.6 in order of their importance to the Orange County-Temescal Valley Production-Consumption Region as determined by the amount of aggregate resource contained within each sector and the ease with which that resource can be made available to the market.

An important factor in determining which resource sectors in the Orange County-Temescal Valley P-C Region will be needed to meet the region's aggregate requirements to the year 2030 is the percentage of the region's resources that will be needed to satisfy those requirements. To calculate this percentage, it is necessary to know not only

- 1) the total amount of aggregate needed to satisfy the region's 50-year requirements (approximately 840 million tons) and
- 2) the amount of resources (reserves: approximately 257 million tons; non-permitted resources: approximately 1,200 million tons) within the P-C region,

but also

- 3) the amount of the non-permitted resources that, practically speaking, can be expected to be brought eventually to the aggregate market (that is, converted to reserves) and
- 4) the amount of aggregate that will be imported from adjacent P-C regions.

Although these last two factors are unknowns, by assuming figures for them, we can model different hypothetical situations and thereby gain some sense of how much of the region's aggregate resources may be needed to satisfy its 50-year aggregate requirements.

*Hypothetical Situation A.* If 60 percent of the non-permitted resources are converted to reserves and no aggregate is imported from adjacent P-C regions, 84 percent of the resources within the Orange County-Temescal Valley P-C Region would be required to meet the projected 50-year demand.

*Hypothetical Situation B.* If aggregate imports from adjacent P-C regions remain constant at the 1978 level, 70 percent of the resources within the Orange County-Temescal Valley P-C Region would be required to meet the projected 50-year demand.

*Hypothetical Situation C.* If the present level of aggregate production within the P-C region is held constant and the rate of aggregate imports from adjacent P-C regions is increased to keep pace with demand, 27 percent of the resources within the Orange County-Temescal Valley P-C Region would be required to meet the projected 50-year demand.

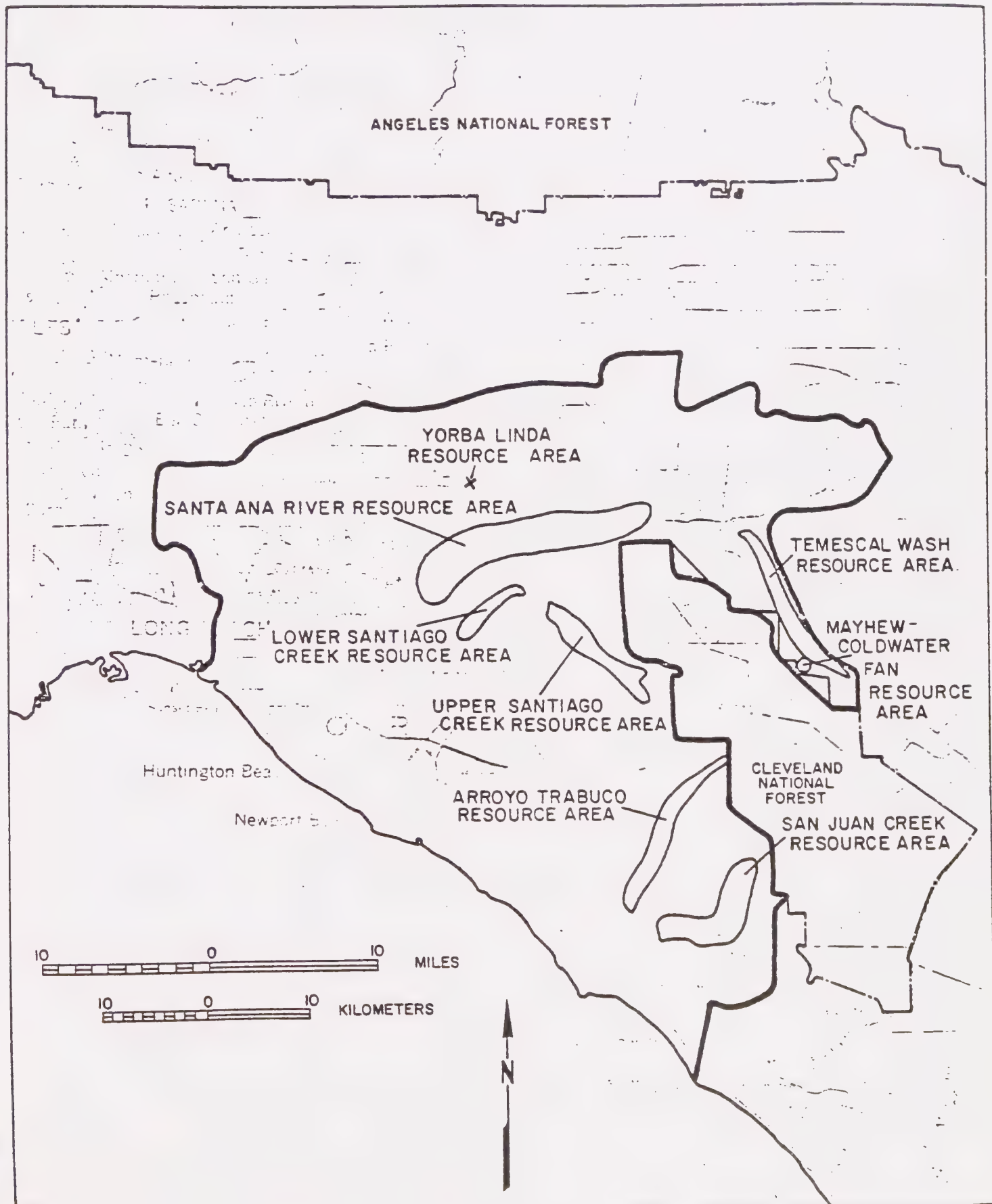


Table 3.2    AGGREGATE RESOURCES\*  
OF THE ORANGE COUNTY-TEMESCAL VALLEY P-C REGION

<u>Resource Area</u>	<u>Sector</u>	<u>Text References</u>	<u>Million Short Tons</u>
Santa Ana River:			
	A	(p. 19)	25.3
	B	(p. 19)	66.7
	C	(p. 20)	62.0
	D	(p. 20)	32.0
	E	(p. 20)	9.8
	F	(p. 20)	58.9
	G	(p. 20)	**
	H	(p. 20)	**
	I	(p. 21)	**
	Total:		<u>394.7</u>
Lower Santiago Creek:			
	J	(p. 21)	233.6
	K	(p. 21)	30.0
	Total:		<u>263.6</u>
Upper Santiago Creek:			
	L	(p. 22)	5.1
	M	(p. 22)	34.1
	N	(p. 22)	17.0
	Total:		<u>56.2</u>
Temescal Wash:			
	O	(p. 22)	10.3
	P	(p. 22)	36.5
	Q	(p. 23)	49.0
	R	(p. 23)	47.4
	Total:		<u>143.2</u>
Mayhew - Coldwater Fan:			
	S	(p. 23)	330.3
	Total:		<u>330.3</u>
San Juan Creek			
	T	(p. 24)	149.7
	Total:		<u>149.7</u>
Arroyo Trabuco:			
	U	(p. 24)	101.2
	V	(p. 24)	29.3
	Total:		<u>130.5</u>
	Grand Total:		<u>1468.2</u>

\* includes the categories of measured, indicated, and inferred.  
(See Part I, Appendix C, for definitions of terms.)

\*\* cannot be shown due to confidentiality of producer data.

Table 3.3 Projected aggregate consumption to the year 2030 for the Orange County-Temescal Valley, San Gabriel Valley, Claremont-Upland, and San Bernardino P-C regions.

YEARS	ORANGE COUNTY-TEMESCAL VALLEY P-C REGION		SAN GABRIEL VALLEY P-C REGION		CLAREMONT-UPLAND P-C REGION		SAN BERNARDINO P-C REGION	
	decline in per capita consumption as shown on Figure 3.13		decline in per capita consumption from Special Report 143, Part IV		5 yr. per capita consumption = 43.7 tons/person		5 yr. per capita consumption = 34.2 tons/person	
	Average Population (Millions)	Aggregate Consumption (Million Tons)	Average Population (Millions)	Aggregate Consumption (Million Tons)	Average Population (Millions)	Aggregate Consumption (Million Tons)	Average Population (Millions)	Aggregate Consumption (Million Tons)
1980-1985	2.51	71	3.68	79	.54	24	.53	18
1985-1990	2.78	76	3.74	79	.57	25	.57	20
1990-1995	3.02	80	3.82	79	.59	26	.60	21
1995-2000	3.21	83	3.87	79	.61	27	.63	22
2000-2005	3.38	85	3.92	78	.63	28	.65	22
2005-2010	3.54	87	3.96	78	.64	28	.67	23
2010-2015	3.70	89	4.01	78	.66	29	.69	24
2015-2020	3.85	90	4.05	78	.67	29	.71	24
2020-2025	3.98	92	4.09	78	.68	30	.72	25
2025-2030	4.09	93	4.13	77	.69	30	.74	25
TOTAL:	840 *		780 *		270 *		220 *	

\*Figure rounded off to the nearest ten million tons.



Table 3.5 SUMMARY OF DESIGNATION FACTORS FOR THE RESOURCE SECTORS IN ORANGE COUNTY-TEMESCAL VALLEY P-C REGION

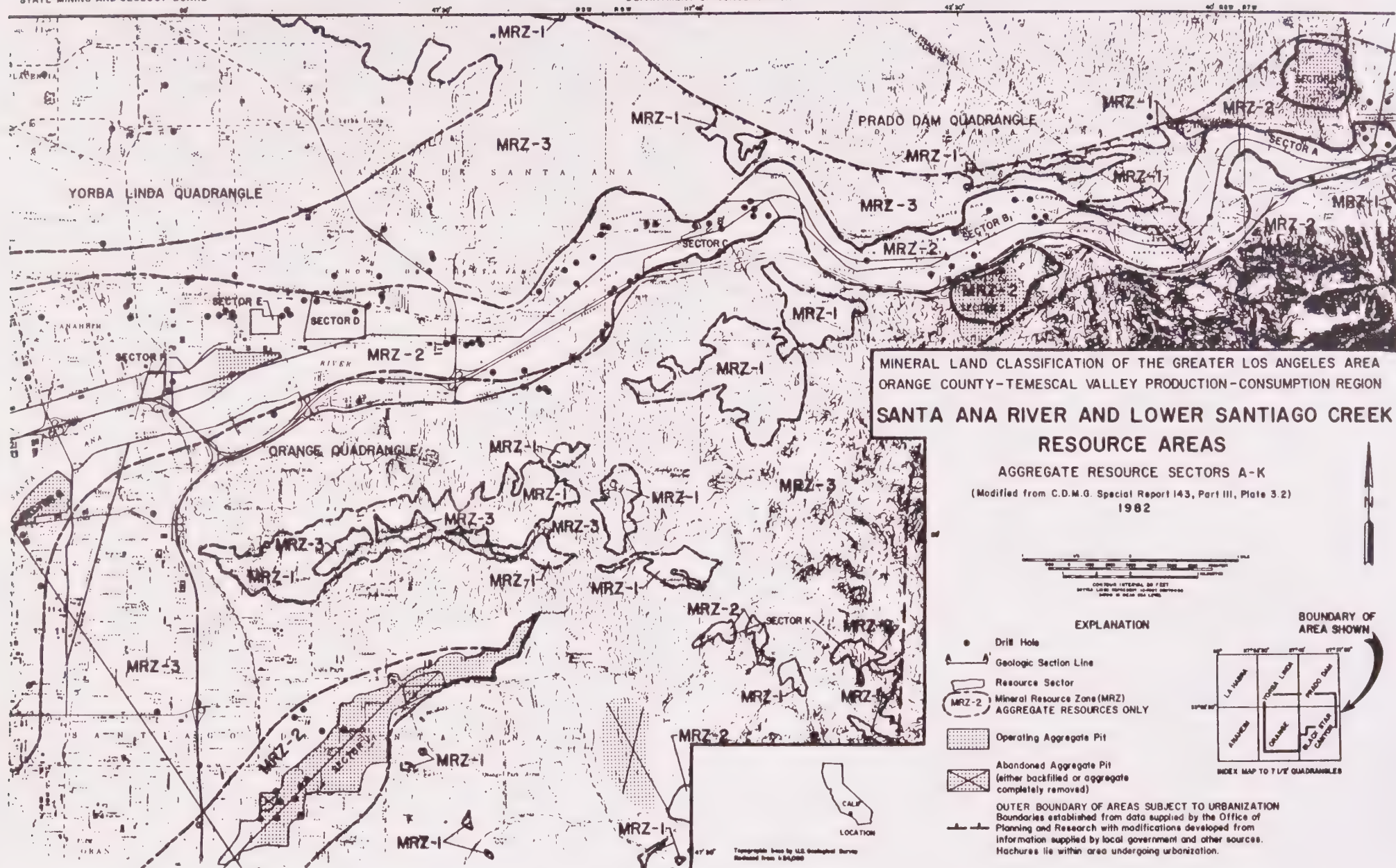
- 1): Percent of Orange County-Temescal Valley P-C region reserves\*  
 2): Percent of Orange County-Temescal Valley P-C region resources\*  
 3): Percent of Orange County-Temescal Valley P-C region production in 1978  
 4): Active aggregate mining within this sector  
 C : Cumulative Percentages

Sector	Resource Area	% Re- serves (1)	C	% Re- sources (2)	C	% Pro- duction (3)	C	Active Mining (4)	Remarks
S	Mayhew-Coldwater Fan	66%		22.5%		24%		Yes	Most of sector included within four active aggregate leases.
J	Lower Santiago Creek	**	**	16%		**	**	Yes	Most of sector lies within two active aggregate leases. Centrally located within market area. Heavy pressure from encroaching urbanization.
T,U,V	San Juan Creek and Arroyo Trabuco	**		19%		**		Yes (T,U)	Only resources located in the fast growing South Orange County area. Much of sector U not under lease including what may be an environmentally sensitive woodland area.
G	Santa Ana River	**	**	**	**	**	**	Yes	All of sector within an active lease. Centrally located within market area. Heavy pressure from encroaching urbanization.
I	Santa Ana River	**	**	**	**	**	**	Yes	Most of sector within an active lease.
H	Santa Ana River	**		**		**		Yes	Most of sector within an active lease.
N	Upper Santiago Creek	**	**	1.2%		**	**	Yes	Much of sector within two active leases.
Q	Temescal Wash	**		3.3%		**		Yes	About one-third of sector within two active aggregate leases. Moderately high urbanizing pressure.
R	Temescal Wash	—		3.2%		—		No	About one-third of sector within an inactive lease. Quality of aggregate not as high as adjacent Mayhew-Coldwater Fan Resource Area (Sector S).
O,P	Temescal Wash	—		3.2%		—		No	Within the town of Corona, high urban pressure.
K	Lower Santiago Creek	—		2.0%		—		No	In mountainous terrane close to market area.
A,B,C	Santa Ana River	—		10.5%		—		No	Sector B and C are adjacent to a park. Sector A is next to a golf course and immediately downstream of Prado Dam. Urban pressure is high in Sector C.
D,E,F	Santa Ana River	—		6.9%		—		No	Sectors D,E and F are in the midst of a rapidly industrializing area. Sector F has two inactive pits within it.
L	Upper Santiago Creek	—		0.3%		—		No	Between Irvine Park and Santiago Dam.
M	Upper Santiago Creek	—		2.3%		—		No	Area covered by Santiago Reservoir.

\* Includes the categories of measured, indicated, and inferred (See Part I, Appendix C, for definitions of terms.)

\*\* Cannot be shown due to confidentiality of producer data.

#### 4. SMARA MAPS





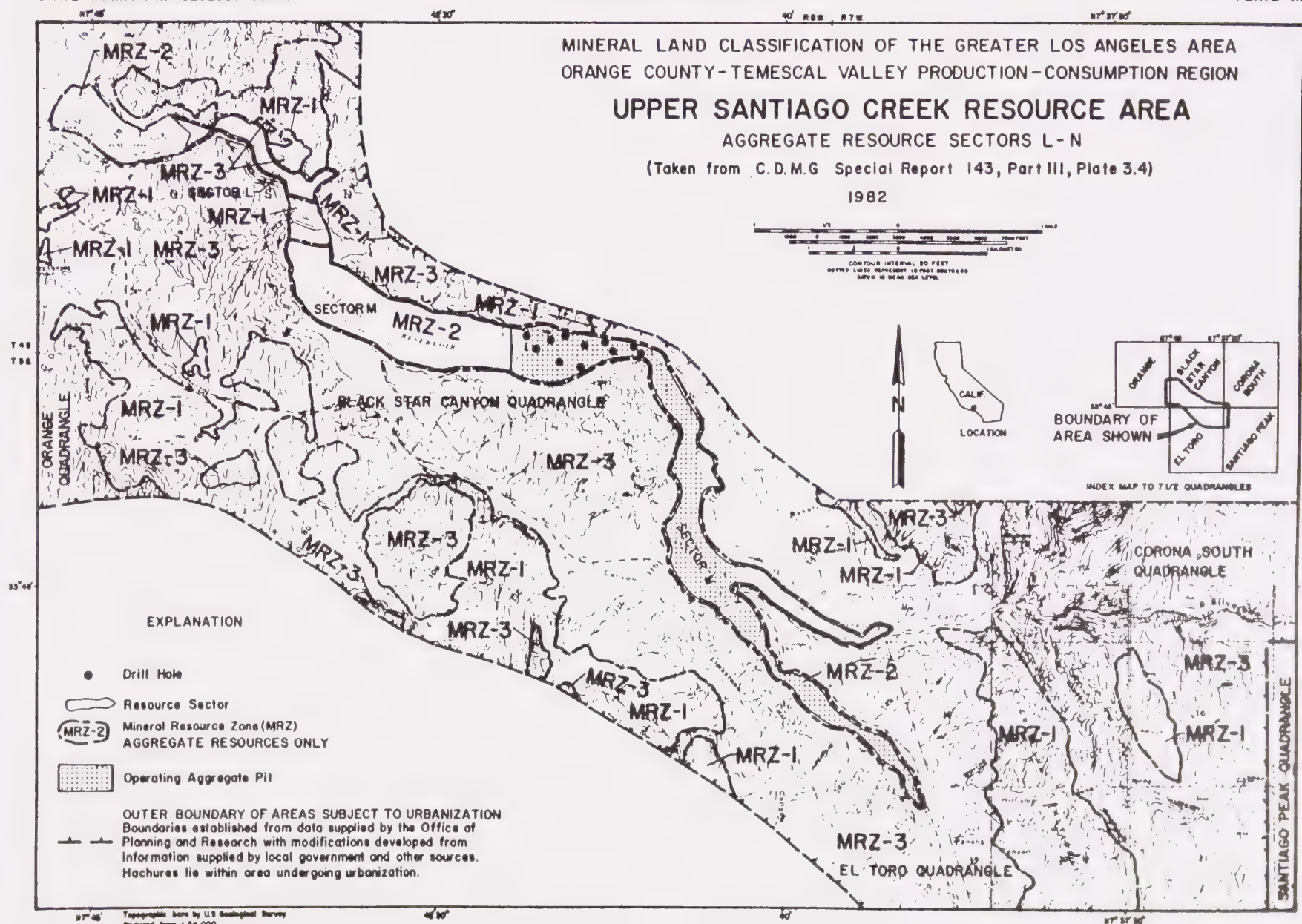
MINERAL LAND CLASSIFICATION OF THE GREATER LOS ANGELES AREA  
ORANGE COUNTY-TEMESCAL VALLEY PRODUCTION-CONSUMPTION REGION

## UPPER SANTIAGO CREEK RESOURCE AREA

AGGREGATE RESOURCE SECTORS L-N

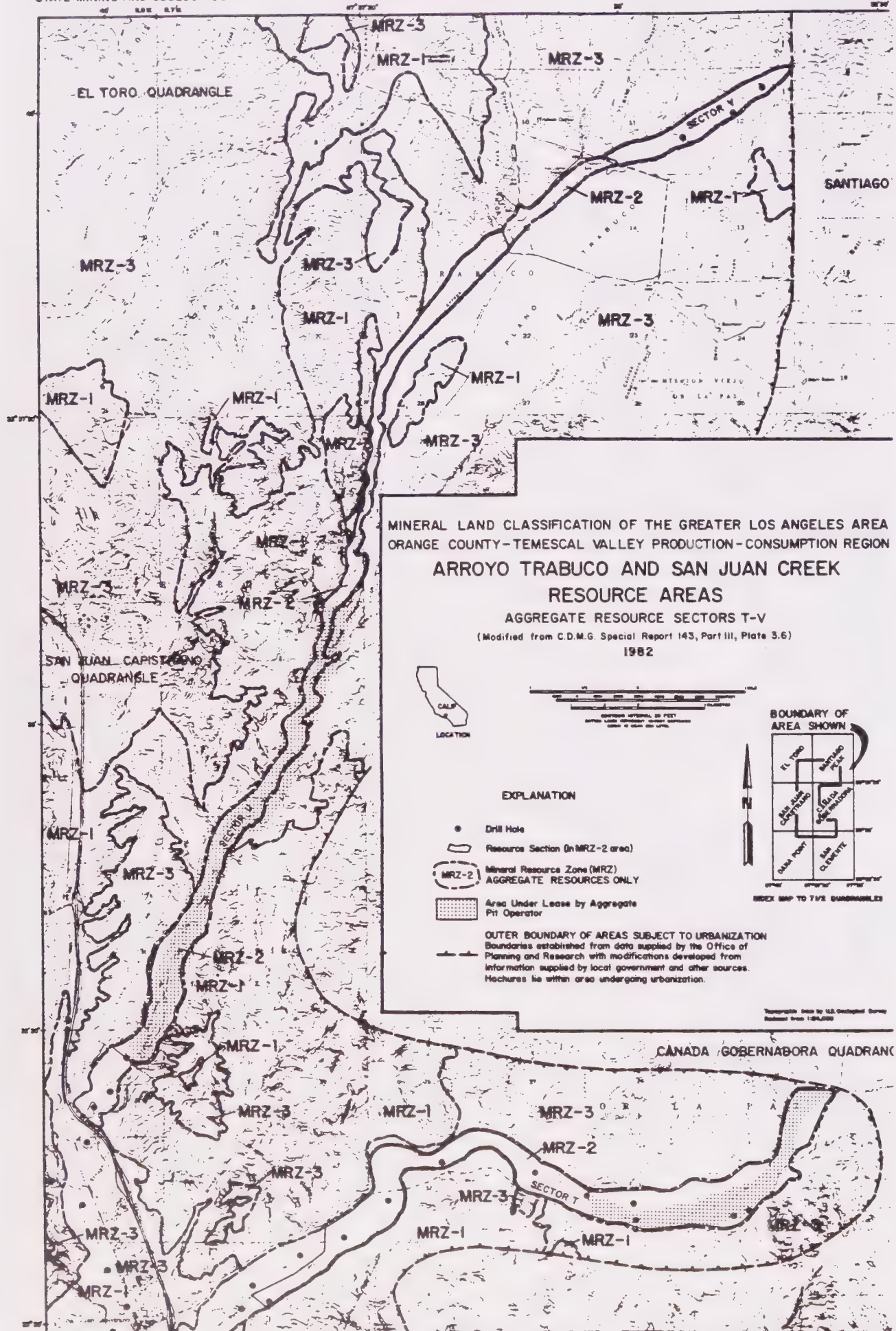
(Taken from C.D.M.G. Special Report 143, Part III, Plate 3.4)

1982



RES-C-29





APPENDIX D



## APPENDIX D

### CHRONOLOGY OF AIR QUALITY LEGISLATION AND PLANNING

- o The seriousness of the local air pollution problem was recognized in the early 1940s, and in 1946, the Los Angeles County Board of Supervisors established the first air pollution control district in the nation to address the problem of industrial air pollution.
- o In Orange County, an early recognition of the causal relationship between air pollution and crop yield led to the formation of the Orange County Air Pollution Control District in 1950. Since that time, agricultural concerns have been overshadowed by health and welfare considerations for a rapidly growing populace.
- o In the mid-1950s, California established the first state agency to control motor vehicle emissions. Countywide or regional air pollution districts were required throughout the state by 1970. Many of the air pollution controls originated in California became the basis for the federal control program which began in the 1960s.
- o **FEDERAL CLEAN AIR ACT OF 1963**

The original Clean Air Act, in response to growing public concerns on air pollution, provided grants-in-aid for research, planning, and development of air quality standards and air pollution control measures to protect the health and welfare of the public.

The Act authorized the Secretary of Health, Education and Welfare (HEW) to publish non-mandatory air quality criteria for safe health standards. Where air pollution endangered public health and a state failed to act, the Secretary of HEW was authorized to intervene.

- o **CALIFORNIA AIR RESOURCES BOARD 1968**

The California legislature created the Air Resources Board in 1968. The ARB was formed by combining two existing state agencies: the Motor Vehicle Pollution Control Board and the Bureau of Air Sanitation, a division of the Health Department. The ARB has direct authority on vehicle emission controls and has developed the most stringent emission standards in the nation.

- o **NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) 1969**  
**CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) 1970**

Both NEPA and CEQA require that any significant project has to be assessed as to its potential harmful impacts on the environment. In those cases where projects were found to have significant impacts, the effects were required to be documented in an environmental impact statement (under NEPA) or an environmental impact report (under CEQA) so that they would be accounted for and considered in the project approval decision-making process.



o **FEDERAL CLEAN AIR ACT, 1970 AMENDMENTS**

The Clean Air Act of 1970 established the statutory requirement for attaining and maintaining the National Ambient Air Quality Standards nationwide by 1975 (with a possible extension to 1977 in particularly polluted areas). Under the Act, each state in which the standards were exceeded was required to submit for the Environmental Protection Agency's (EPA) approval a State Implementation Plan (SIP) that would achieve compliance with the standards.

However, the EPA failed to publish guidelines by August 1974 and SIP submittals were extended to July 1, 1979.

o **CALIFORNIA LEWIS AIR QUALITY ACT (1976)**

The Lewis Act established the South Coast Air Quality Management District (SCAQMD) and mandated a planning process. In addition to requiring preparation of an Air Quality Management Plan (AQMP) consistent with federal planning requirements, the act also set up a process in which the AQMP would be reviewed every two years and revised as necessary.

o **FEDERAL CLEAN AIR ACT, AS AMENDED IN 1977**

The 1977 Clean Air Act Amendments extended the attainment of the national ambient air quality standards to December 31, 1982. The EPA was authorized to grant an extension of the attainment date for the carbon monoxide (CO) and ozone (O<sub>3</sub>) standards to December 31, 1987 if all reasonable available control measures were being implemented. If an extension was granted, a revised SIP was required to be submitted by July 1, 1982 which demonstrated that the federal CO and O<sub>3</sub> standards would be met by December 31, 1987.

o **1979 AQMP**

The Southern California Association of Governments (SCAG) and SCAQMD approved the draft plan in January 1979. The California Air Resources Board (CARB) adopted the AQMP in May 1979 and submitted the plan to EPA in July 1979 as the South Coast Air Basin portion of the SIP.

EPA conditionally approved the AQMP in January 1981; however, sanctions were imposed because the California legislature failed to adopt an inspection and maintenance (I&M) program as required by the EPA for non-attainment areas.

At the request of the ARB, sanctions were removed in April 1982. However, the EPA still did not approve the CO and O<sub>3</sub> portion of the plan since an I&M program had not been implemented.

Orange County participation in the development of the 1979 AQMP included the preparation of a subregional element. The Orange County Subregional Planning Council (SPC), an inter-governmental agency,

coordinated the preparation and development of the subregional element with the twenty-six cities in Orange County.

The Orange County Board of Supervisors passed a resolution on April 15, 1980 to implement six mandatory measures listed in the 1979 AQMP. Of the twenty-six cities in Orange County, twenty passed resolutions to implement the 1979 AQMP, two additional cities committed to implement the control measures (no Council resolution), and four cities declined to participate in the program.

o **AQMP 1982 REVISION**

As with the 1979 AQMP, the Subregional Planning Council coordinated the development of the Subregional Element with the cities of Orange County. The Orange County Board of Supervisors adopted the Subregional Element in March 1983, as recommended by the SPC, and submitted the element to SCAG for consideration of inclusion in the 1982 AQMP.

The 1982 AQMP Revision, using better data and modeling tools that were made available for this effort, concluded that the region could not meet the 1987 attainment deadline mandated by the 1977 Clean Air Act.

Implementation of the recommended one hundred and thirty five (135) control measures in the AQMP, is expected to accomplish the following:

- **Ozone.** Reduction of the number of first stage episodes from 115 to an estimate of 15-55 and reduction of second stage episodes from 21 to 0 by the year 2000.
- **Nitrogen Dioxide.** Attainment of federal standards by 1987 and state standards by the year 2000.
- **Carbon Monoxide.** Attainment of federal standards by the year 2000, while reducing the number of violations of state standards and hot spot concentrations.
- **Sulfur Dioxide and Sulfates.** Continued attainment of federal standards while reducing violation of state standards.
- **Total Suspended Particulates.** Attainment of federal standards, if the standard is changed to inhalable particulates.
- **Total Oxidants.** Reduction of number of violation days.

o **INSPECTION AND MAINTENANCE PROGRAM (I&M)**

The California State Legislature adopted an Inspection and Maintenance Program on September 10, 1982. The SCAQMD approved the program for the South Coast Air Basin on February 4, 1983. The program began in the Spring of 1984 and will continue until 1990. The program calls for biennial inspection of all gasoline powered autos and light duty trucks which are less than twenty years old. The maximum repair cost is limited to \$50 with escalation to \$100 based on cost of living

increases. Vehicle inspection requires tamper-proof computer operated test equipment.

In 1987, the federal court ordered EPA to disapprove the 1982 AQMP Revision because it did not demonstrate attainment of the federal standards by 1987 as required by the Clean Air Act.

On January 22, 1988, the EPA published its final disapproval of the South Coast SIP. However, federal legislation enacted in late 1987 prevents EPA from imposing sanctions until August 31, 1988.

o **REGULATION XV**

State legislation provides the SCAQMD with authority to implement transportation and land use control measures within the South Coast Air Basin. In their effort to reduce air pollution, the SCAQMD adopted Regulation XV on December 11, 1987. The regulation sets forth actions which employers with 100 or more employees must take to reduce the number of trips their employees make during the morning peak commute hours (6:00 a.m. to 10:00 a.m.). The regulation requires affected employers to develop and implement trip reduction and ridesharing programs. Implementation of the regulation began July 1, 1988.

o **ORANGE COUNTY'S TRIP REDUCTION INCENTIVE PROGRAM (TRIP)**

The Orange County Transportation Commission is seeking approval from the SCAQMD to substitute TRIP for Regulation XV. A provision in the regulation allows for a substitute program which is as effective as Regulation XV. TRIP was developed at the local level and has local support which is an important ingredient in any successful program. It has similar **emission reduction** goals as Regulation XV and similar to the regulation, it also includes employers with 100 or more employees. In addition, it includes **complexes** with 100 or more employees. The program is currently being reviewed by SCAQMD and EPA.

o **1988 AQMP**

The 1988 AQMP is currently being developed by SCAG and SCAQMD. The AQMP sets a goal of attaining all federal and state standards no later than:

- December 31, 1996 for nitrogen dioxide
- December 31, 1997 for carbon monoxide
- December 31, 2007 for ozone and PM<sub>10</sub> (Particulate Matter)

The SCAG and SCAQMD adoption schedule for the plan is in November 1988.

There is a pending court decision which will determine how EPA will carry out post-1987 rule making. The court is expected to make a decision in September 1988.

APPENDIX E





COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
1.1 Alternative Work Schedules	X <sup>1/</sup>	I10 Modified Work Schedule	X	H4 Modified Work Schedule	X
1.2 Telecommunications	---	N/A	---	N/A	---
2.1 Employee Rideshare and Transit Incentives	X <sup>1/</sup>	I8 Ridesharing- Employer Directed Ridesharing	X	H34 Employee Ridesharing Program	X
	---		---	H112 Carpool Signups for Government Employees	---
2.2 Parking Management	X <sup>1/</sup>	I9 Ridesharing through Parking Management	X	H5 Carpool Preferential Parking	X
2.3 Vanpool Vehicle Purchase Incentives	X <sup>1/</sup>	I8 Ridesharing- Employer Directed Ridesharing	X	N/A	---
2.4 Merchant Rideshare & Transit Incentives	---	N/A	---	N/A	---
2.5 Auto Use Restrictions	---	N/A	---	N/A	---

NOTES: 1/ Carry-on of previous efforts  
N/A Not Applicable

RES-E-1

COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
2.6 HOV Facilities	---	N/A	---	H85 "Freeway Facility and Transit Improvements Supporting HOV Movement- Freeway Transit and Exclusive HOV Lanes for Carpools and Buses"	---
	---	N/A	---	H117 Santa Ana Transportation Corridor	---
2.7 Transit Improvements	---	N/A	---	H89 Transit System Improvements	---
	---	N/A	---	H86 Regional Core Rapid Mass Transit (RMT) Wilshire Rail Line	---
3. Growth Management	---	01 Mixed Land Use/ Balanced Development	X	N/A	---
	---	02 Clustering of New Commercial Development	X	N/A	---
	---	04 Encourage Residen- tial Development in Strip Commercial Areas	X	N/A	---

NOTES: 1/ Carry-on of previous efforts  
N/A Not Applicable

RES-E-2

COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
	---	05 Increased Residential Density Near Major Transit Corridors	X	N/A	---
	---	017 Increased Employment Density Near Major Bus Transit Routes	X	N/A	---
4.1 Truck Dispatching, Rescheduling and Rerouting	---	N/A	---	N/A	---
4.2 Diverting Goods from Truck to Rail	---	N/A	---	N/A	---
5. Traffic Flow Improvements	X <sup>1/</sup>	K2 Traffic Signal Synchronization	X	H35 Traffic Signal Synchronization	X
6. Non-Recurent Congestion	---	K4 Reduce Non- Recurent Congestion	---	H118 Reduce Non-Recurent Congestion	---
7. Indirect Source: Aircraft and Ground Service Vehicles	---	I25 Off Airport Terminals	---	N/A	---
	---	I27 LAX Ground Access Project	---	N/A	---

NOTES: 1/ Carry-on of previous efforts  
N/A Not Applicable

RES-E-3



COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
8. Rail Consolidation to Reduce Grade Crossings	---	N/A	---	N/A	---
9. Indirect Source: Control Airport Ground Access	---	N/A	---	N/A	---
10.2 Storage and Movement of Fine Particulate Matter	---	N/A	---	N/A	---
10.3 Unpaved Roads and Parking Lots	---	N/A	---	N/A	---
11. Freeway Capacity Enhancements	---	N/A	---	H88 Congestion Relief- Freeway Widenings	---
12. General Aviation Vapor Recovery	---	N/A	---	N/A	---
13. Replacement of High-Emitting Aircraft	---	M6 Emissions for Non-Carrier Aircraft	---	H6 Aircraft Emission Controls	---
14. Railroad Electrification	---	M8 Electrification of Railroad Haul Operations	---	H11 Electrify Railroad Switching Yards	---
15. Electric Vehicles	---	M4 Electric Vehicles	---	H60 Electric Vehicles	---

NOTES: N/A Not Applicable

RES-E-4

COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
16. Highway Electrification	---	N/A	---	N/A	---
17. High Speed Rail	---	N/A	---	N/A	---
18.1 Local Government Energy Conservation	---	N13 Government Energy Conservation	---	N/A	---
18.2 Waste Recycling	---	N/A	---	N/A	---
18.3 Pricing, Tax and Subsidy Incentives	---	N/A	---	N/A	---

NOTES: N/A Not Applicable

RES-E-5

COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
<p style="text-align: center;"><b>C O N T R O L   M E A S U R E S   N O T   I N C L U D E D   I N   T H E   1 9 8 8   D R A F T   A Q M P</b></p> <p>Please note that there are control measures below which have been adopted by the County and have been implemented.</p>					
N/A	---	A1 FGD on Fluid Catalytic Cracking Units	---	S3 Fluid Catalytic Cracking	---
N/A	---	A2 Pipeline Heaters	---	N/A	---
N/A	---	A3 Natural Gas and Oil Production, Valves & Flanges	---	H50 Natural Gas and Oil Production	---
N/A	---	A4 Oil Tank Cleaning	---	H56 Oil Tank Cleaning	---
N/A	---	A5 Refineries, Waste Water Separators	---	N/A	---
N/A	---	A6 Petroleum Vacuum Trucks	---	N/A	---
N/A	---	A7 Marine Fuel Transfer, all Gasoline Powered Craft	---	N/A	---
N/A	---	A8 Refinery Heaters and Boilers	---	N11 Emission Controls on Refinery Heaters	---
N/A	---	A10 Refinery CO Boilers	---	N/A	---

NOTES: N/A Not Applicable

RES-E-6

COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
N/A	---	A13 Petroleum Coke Calcining	---	S1 Petroleum Coke Calcining	---
N/A	---	A15 Petroleum Refineries Flares	---	N/A	---
N/A	---	A16 Oil Field Steam Generators	---	N/A	---
N/A	---	A19 Thermally Enhanced Oil Recovery	---	N/A	---
N/A	---	A20 Refinery Pressure Relief Valves	---	N/A	---
N/A	---	B1 Wood Flatstock Coating Lines	---	N/A	---
N/A	---	B2 Substitute Coatings Used in Industrial Maintenance	---	H26 Substitute Coatings Used in Machinery Maintenance	---
N/A	---	B3 Marine Coatings	---	H28 Substitute Coatings Used in Ship Construction	---
N/A	---	B4 Motor Vehicle Manufacturing Coatings	---	H37 Substitute Coatings Used in Automobile Manufacturing	---

NOTES: N/A Not Applicable

RES-E-7



COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
N/A	---	B5 Wood Furniture Finishes	---	H59 Wood Furniture Manufacturing	---
	---		---	H45 Substitute Coatings Used in Wood Furniture Finishes	---
N/A	---	B6 Substitute Coatings, Metal Parts Manufac- turing	---	H49 Substitute Coatings Used in Manufacturing Metal Parts and Products	---
N/A	---		---	H20 Substitute Coatings Used in Metal Furniture and Fixtures Manufacturing	---
N/A	---	B7 Substitute Coatings Used in the Aerospace Industry	---	H65 Substitute Coatings Used in the Aerospace Industry	---
N/A	---	B8 Substitute Coatings Used in Automobile Refinishing	---	H54 Substitute Coatings Used in Automobile Refinishing	---
N/A	---	C1 Metal Cleaning Operations	---	H42 Emission Controls on Metal Cleaning Operations	---

NOTES: N/A Not Applicable

RES-E-8

COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
N/A	---	C2 Aerosol Spray and Other Consumer Solvents	---	N/A	---
N/A	---	C3 Pesticide Applications	---	N/A	---
N/A	---	D1 Non-Refinery Valve Maintenance	---	H9 Maintain Leaky Valves in Non-Refinery Industrial Processes	---
N/A	---	D2 Paper and Fabric Coating	---	H21 Substitute Coatings Used in Fabric and Paper Product Mfg.	---
N/A	---	D3 Emission Controls for Rubber Products Manufacturing Processes	---	N/A	---
N/A	---	D4 Solvent Extraction	---	H53 Vegetable Oil Processing	---
N/A	---	D5 Pumps and Compressors	---	N/A	---
N/A	---	D6 Pharmaceutical and Cosmetics Manufacturing	---	H57 Emission Controls on Pharmaceutical and Cosmetics Manufacturing Operations	---

NOTES: N/A Not Applicable

RES-E-9

COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
	---		---	P3 Filter Dust from Pharmaceutical Manufacturing	---
N/A	---	D7 Rubber Products Manufacturing	---	H48 Emission Controls on on Rubber Products Manufacturing	---
N/A	---		---	P4 Filter Dust from Rubber Products Manufacturing	---
N/A	---	E1 Electric Utility Gas Turbines	---	N/A	---
N/A	---	E4 Electric Utility Gas Turbines- Methanol	---	N/A	---
N/A	---	E5 Electric Utility Boilers	---	N/A	---
N/A	---	F1 Landfill Gas Recovery and Disposal	---	N/A	---
N/A	---	G1 Synthetic Organic Chemical Manufacturing	---	H46 Emission Controls for Chemical Manufacturing Plants	---

NOTES: N/A Not Applicable

RES-E-10

COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
N/A	---	G2 Graphic Arts Industry	---	H43 Solvent Reductions in Printing Operations	---
N/A	---	G3 Perchloroethylene Dry Cleaning Systems	---	N/A	---
N/A	---	G4 Petroleum Solvent Dry Cleaners	---	N/A	---
N/A	---	G5 Cement Kilns	---	N7 Emission Controls on Cement Kilns	---
N/A	---	G7 Glass Melting Furnaces	---	N14 Glass Melting Furnaces	---
N/A	---	G9 Stationary Internal Combustion Engines	---	N16 Stationary Internal Combustion Engines	---
N/A	---	G11 Industrial Boilers	---	N10 Industrial Boilers	---
N/A	---	G12 Fugitive Dust from Unpaved Roads	---	N/A	---
N/A	---	H1 Lower Emission Tax Incentives	---	N/A	---
N/A	---	H2 Bus Replacement	---	N/A	---

NOTES: N/A Not Applicable

RES-E-11



COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
N/A	---	H3 Tuneups to Manufacturer's Specifications	X	N/A	---
N/A	---	H5 Low Emission, High Fuel Economy Vehicles for Local Gov't.	X	H113 Purchase of Low Emission, High Fuel Economy Government Vehicles	---
N/A	---	I4 Bicycling Improvements	X	H23 Increased Bicycle/ Pedestrian Facilities	X
N/A	---	I6 Walking Improvements	X	H23 Increased Bicycle/ Pedestrian Facilities	X
N/A	---	I28 Reduce Business Miles Traveled By Government Employees	X	N/A	---
N/A	---	I29 Home Goods Delivery	X	N/A	---
N/A	---	J1 Truck Freight Consolidation Terminals	---	N/A	---
N/A	---	J2 Truck Deregulation	---	N/A	---

NOTES: N/A Not Applicable

RES-E-12

COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
N/A	---	K9 City Wide Bus Shelter Program	---	N/A	---
N/A	---	K11 Revised Parking Facility Design Standards	---	N/A	---
N/A	---	K13 Improve Traffic Flow Through Use of One-Way Streets	X	N/A	---
N/A	---	K14 Eliminate Lane Closures	---	N/A	---
N/A	---	L1 Tow Aircraft	---	N/A	---
N/A	---	L2 Increased Air Passenger Load Factor	---	H1 Increased Air Passenger Load Factor	---
N/A	---	L3 Jet Aircraft Ground Taxi Improvements	---	H25 Reduce Jet Aircraft Queuing Delays	---
N/A	---	L5 Centralized Ground Power Systems	---	N/A	---
N/A	---	L6 Marine Diesel Engines	---	N13 Marine Diesel Engines	---

NOTES: N/A Not Applicable

RES-E-13

COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
N/A	---	L8 Marine Vessel Operations- Dockside Fueling	---	N/A	---
N/A	---	L9 Reduce the Number of Aircraft Engines During Idle and Taxi Operations	---	H2 Jet Aircraft Taxi Improvements	---
N/A	---	M1 In-Use Vehicles Strategy	---	H18 Annual Inspection and Maintenance of Light and Medium Duty Vehicles	---
N/A	---	M2 New Vehicles Strategy	---	N/A	---
	---	M5 Dual Fueled Fleet Vehicles	---	N/A	---
N/A	---	M10 Emissions Standards- Utility Equipment	---	N/A	---

NOTES: N/A Not Applicable

RES-E-14

COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
N/A	---	M11 Emission Standards- New Off- Road Heavy Duty Non-Farm Equipment	---	H7 Emission Standards- New Off-Road Heavy Duty Non-Farm Equipment	---
N/A	---	M13 Methanol Fleet Vehicle Conversion	---	N/A	---
N/A	---	M14 Emission Standards for New Boats- Pleasure Craft	---	N/A	---
N/A	---	N1 Retrofit Weatherproofing of Existing Homes	---	N2 Residential Retrofit	---
N/A	---	N7 Increased Shading of Streets and Walls	---	N/A	---
N/A	---	N9 Wind Energy Resources	---	N/A	---

NOTES: N/A Not Applicable

RES-E-15



COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
N/A	---	N10 Energy Conservation Standards for New Residences	X	N/A	---
N/A	---	N11 Conversion to Energy- Efficient Street Lighting	X	N4 Energy Efficient Street Lighting	X
N/A	---	N15 More Efficient Sewage Treatment (City of LA)	---	N/A	---
N/A	---	N16 Heat Exchangers, Gas-Fired Fan Type Central Furnaces	---	N5 Alter Design of Residential Space Heaters	---
N/A	---	N18 Altered Design of New Residential Water Heaters	---	N6 Alter Design of New Residential Water Heaters	---
N/A	---	N27 Life Cycle Costing of New Government Purchases	X	N/A	---
N/A	---	P6 New Source Review	---	N/A	---

NOTES: N/A Not Applicable

RES-E-16

COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
C O N T R O L   M E A S U R E S   N O T   I N C L U D E D   I N   T H E   1 9 8 8   O R   1 9 8 2   A Q M P					
N/A	---	N/A	---	H3 Triple Trailer Trucking	---
N/A	---	N/A	---	H13 Trip Reduction Program	---
N/A	---	N/A	---	H15 Emission Standards- New Farm Equipment	---
N/A	---	N/A	---	H16 Emission Standards- Jet Aircraft Engines	---
N/A	---	N/A	---	H19 Emission Controls for Small Relief Valves	---
N/A	---	N/A	---	H22 Emission Standards- Lawnmowers and Garden Equipment	---
N/A	---	N/A	---	H24 Improved Emission Controls for Motor Vehicles	---
N/A	---	N/A	---	H29 Emission Controls on Gasoline Bulk Plant Operations	---

NOTES: N/A Not Applicable

RES-E-17

COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
N/A	---	N/A	---	H30 Emission Controls for Random Leaks at Refineries	---
N/A	---	N/A	---	H31 Substitute Coatings Used in Magnetic Wire Manufacturing	---
N/A	---	N/A	---	H36 Voluntary Retirement of Older Cars	---
N/A	---	N/A	---	H39 Substitute Coatings Used in Metal Can and Coil Stock Manufacturing	---
N/A	---	N/A	---	H44 Substitute Materials Used in Asphalt Applications	---
N/A	---	N/A	---	H47 Emission Controls: Paint Manufacturing Plants	---
N/A	---	N/A	---	H62 Marine Fuel Transfer Operations	---
N/A	---	N/A	---	H72 Increased Trucking Efficiency	---

NOTES: N/A Not Applicable

RES-E-18

COMPARATIVE CONTROL MEASURES OF THE 1988, 1982 AND 1979  
AIR QUALITY MANAGEMENT PLANS (AQMP)

DRAFT 1988 AQMP CONTROL MEASURES	CONTROL MEASURES TO BE ADOPTED BY COUNTY OF ORANGE	1982 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE	1979 AQMP CONTROL MEASURE	CONTROL MEASURE ADOPTED BY COUNTY OF ORANGE
N/A	---	N/A	---	H87 Downtown People Mover System	---
N/A	---	N/A	---	H90 Future Improvement of Technological Controls	---
N/A	---	N/A	---	N1 Energy Conservation: Commercial Institution and Industrial Audits	---
N/A	---	N/A	---	N8 Emission Controls on Medium and Small Steam Generators	---
N/A	---	N/A	---	P9 Control Dust Emissions from Construction and Demolition Projects	---
N/A	---	N/A	---	S4 Refinery Fuel Burning Sources	---
N/A	---	N/A	---	S5 Sulfur Content of Diesel Fuel	---

NOTE: N/A Not Applicable  
MBM:sgPA01-89/8280  
8061511565723





## APPENDIX F



## APPENDIX F

### LIST OF ACRONYMS/ABBREVIATIONS

af	acre-foot
AFIS	Areawide Fiscal Impact System
AQMP	Air Quality Management Plan
CAA	Community Analysis Area
CEQA	California Environmental Quality Act
CO	Carbon Monoxide
DMP	Development Monitoring Program
EIR	Environmental Impact Report
EMA	Environmental Management Agency
GSA	General Services Agency
HBPD	Harbors, Beaches and Parks District
HC	Hydrocarbons
LCP	Local Coastal Program
maf	million acre feet
MEA	Master Environmental Assessment
M & I	Municipal and Industrial
mmcf	million cubic feet
mmcfd	million-million cubic feet per day
MMTS	Multi-Modal Transportation System
MWD	Metropolitan Water District
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO <sub>x</sub>	Oxides of Nitrogen
OCP-III	Orange County Preferred-III



OCTC	Orange County Transportation Commission
O & M	Operation and Maintenance
ppm	parts per million
PV	Photovoltaic
RHC	Reactive Hydrocarbon
RSA	Regional Statistical Area
SCAG	Southern California Association of Governments
SCE	Southern California Edison Company
SCG	Southern California Gas Company
SDG&E	San Diego Gas and Electric
SHPO	State Historic Preservation Office
SO <sub>x</sub>	Oxides of Sulfur
SMARA	Surface Mining and Reclamation Act
SWP	State Water Project
taf	thousand acre feet
TAZ	Traffic Analysis Zone
TDS	Total Dissolved Solids
THC	Total Hydrocarbon
TSP	Total Suspended Particles
VHT	Vehicle Hours Travelled
VMT	Vehicle Miles Travelled

## APPENDIX G



## APPENDIX G

### B I B L I O G R A P H Y

- Board Resolution No. 77-866 (Archaeo/Paleo Recreation Plan).
- Board Resolution No. 82-583 (Historic Resources Management Plan).
- Board Resolution No. 80-27 (Historical Commission).
- Board Resolution No. 83-607 (Archives).
- Bolsa Chica LCP/LUP, January 1982.
- Bolsa Chica Linear Park Boundary Study.
- California Division of Mines and Geology Special Report 143, Parts III and IV, for the Orange County Region, 1981.
- California Energy Commission (1980, 1981).
- California Government Code (Sections 65560-65568).
- "California State Park System, 1980," An Element of the California Outdoor Recreational Resources Plan, March 1980.
- County of Orange/OCP-III Projections.
- County Water Conservation/Development Program.
- EMA/Right-of-Way Engineering 1983.
- Final Air Quality Management Plan (1982 Revision).
- General Services Agency Inventory, Orange County Flood Control District, 1983.
- Local Coastal Plans.
- Master Environmental Assessment.
- Memo of April 27, 1979, "Update on Cleveland National Forest."
- Metropolitan Water District Report No. 948, August 1983.
- Natural Shoreline Study, Army Corps of Engineers.
- Open Space/Recreation/Special Districts Program Office Program Report 1983-84.
- Orange County Land Cover Survey.
- Orange County Conservation Element (1978).



Orange County Land Use Element (June 1982).

Orange County Open Space Element (1978).

Orange County Transportation Commission, MMTS Projections (1982).

Orange County Master Plan, Phase I and Phase II Report.

Park Modification PM 81-9 (Colinas de Capistrano), November 1981.

Santa Ana River Mouth LCP, February 1981.

Southern California Association of Governments.

South Coast Air Quality Management Plan.

Southern California Edison Company.

Southern California Gas Company (1980).

State Agricultural Lands Map and Data.

State Department of Conservation.

State Department of Fish and Game.

Sunset Beach LCP North Coast Planning Unit, September 1980.

Surface Mining and Reclamation Act Maps.

University of California Natural Land and Water Reserve System, University of California (September 1980).

U. S. Department of Commerce, Bureau of the Census.

208 Water Quality Plan.

APPENDIX H



RESOLUTION OF THE BOARD OF SUPERVISORS  
OF ORANGE COUNTY, CALIFORNIA  
February 19, 1986

On motion of Supervisor Nestande, duly seconded and carried, the following resolution was adopted:

WHEREAS, the County of Orange has an adopted General Plan; and

WHEREAS, pursuant to the Planning and Zoning Law of the State of California, this Board has reviewed the publicly-initiated Recreation Element amendment 1985-1 (REC 85-1) and Resources Element amendment 1985-2 (RES 85-2); and

WHEREAS, in compliance with said law, public hearings were held by the Planning Commission on these element amendments on August 20, September 18, and October 8, 1985; and

WHEREAS, on December 11, 1985 the Orange County Board of Supervisors referred Recreation Element Amendment 1985-1 (REC 85-1) to the Orange County Planning Commission to consider two additional policies which address fulfilling Local Park Code obligations through the provision of private parks; and

WHEREAS, a public meeting was held by the Orange County Planning Commission on December 17, 1985, January 14, 1986, and January 28, 1986; and

WHEREAS, Negative Declaration No. IP 85-085 was prepared for the Recreation Element amendment 1985-1 (REC 85-1) and Resources Element amendment 1985-2 (RES 85-2); and

WHEREAS, this Board has duly considered the Recreation Element amendment 1985-1 (REC 85-1) and Resources Element amendment 1985-2 (RES 85-2) and finds that the public interest, health, comfort, convenience, safety, order, general welfare and peace will be more adequately served thereby; and

WHEREAS, this Board has complied with the State and County environmental procedures by reviewing and considering Negative Declaration No. IP 85-085.

NOW, THEREFORE, BE IT RESOLVED that this Board has evaluated Negative Declaration No. IP 85-085 and has determined it to be adequate and complete for this project and satisfies the requirements of the California Environmental Quality Act.

BE IT FURTHER RESOLVED, that the Board of Supervisors of the County of Orange hereby adopts Recreation Element amendment 1985-1 (REC 85-1) and Resources Element Amendment 1985-2 (RES 85-2) of the General Plan as described in the Agency report of December 11, 1985 and as amended by the Agency report of January 28, 1986, and as further amended by the Planning Commission on that date.

Resolution No. 86-193  
Cont'd Pub Hrg-Rec Element  
1985-1 & Res. Element Amend  
1985-2 & Neg Dec IP 85-085  
JRG:db

RECEIVED

MAR 14 1986



AYES: SUPERVISORS BRUCE NESTANDE, HARRIETT M. WIEDER, ROGER R. STANTON,  
THOMAS F. RILEY, RALPH B. CLARK

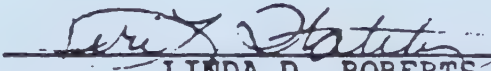
NOES: SUPERVISORS NONE

ABSENT: SUPERVISORS NONE

STATE OF CALIFORNIA )  
COUNTY OF ORANGE ) ss.

I, LINDA D. ROBERTS, Clerk of the Board of Supervisors of Orange County, California, hereby certify that the above and foregoing Resolution was duly and regularly adopted by the said Board at a regular meeting thereof held on the 19th day of February, 1986, and passed by a unanimous vote of said Board.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 19th day of February, 1986.

  
LINDA D. ROBERTS  
Clerk of the Board of Supervisors  
of Orange County, California


















# PROGRAM MAP

FIGURE 1

## OPEN SPACE. CONSERVATION & SCENIC CORRIDORS

-  COUNTY SHORELINE
-  LARGE OPEN SPACE,  
CONSERVATION & SCENIC  
CORRIDORS
-  NARROW OPEN SPACE,  
CONSERVATION & SCENIC  
CORRIDORS

## OPEN SPACE, CONSERVATION NODES

-  CLEVELAND NATIONAL FOREST
-  STATE LANDS (LARGE HOLDINGS)
-  STATE BEACHES
-  COUNTY BEACHES
-  COUNTY REGIONAL PARKS  
(EXISTING & PROPOSED)
-  PRIVATE OPEN SPACE

## SPECIAL OPEN SPACE FEATURES

-  MARINE LIFE REFUGES &  
ECOLOGICAL RESERVES

### CERTIFICATION

I HEREBY CERTIFY THAT THE RESOURCES ELEMENT, A PART  
OF THE ORANGE COUNTY GENERAL PLAN WAS ADOPTED  
BY THE ORANGE COUNTY PLANNING COMMISSION ON 1-28-86  
AND ADOPTED BY RESOLUTION NUMBER 86-193 BY THE  
ORANGE COUNTY BOARD OF SUPERVISORS ON 2-19-86

Robert G. Fisher  
Director Of Planning  
Environmental Management Agency







# IMPLEMENTATION OF OPEN SPACE/CONSERVATION



## OPEN SPACE / CONSERVATION



# CONSERVATION PROGRAM (AS OF FEBRUARY 1986)






IMPLEMENTED AS OF 2/86





## PROGRAM MAP

FIGURE 2  
(NOT A PLAN)

### OPEN SPACE, CONSERVATION & SCENIC CORRIDORS

-  COUNTY SHORELINE
-  LARGE OPEN SPACE,  
CONSERVATION & SCENIC  
CORRIDORS
-  NARROW OPEN SPACE,  
CONSERVATION & SCENIC  
CORRIDORS

### OPEN SPACE, CONSERVATION NODES

-  CLEVELAND NATIONAL FOREST
-  STATE LANDS (LARGE HOLDINGS)
-  A STATE BEACHES  
B COUNTY BEACHES
-  COUNTY REGIONAL PARKS  
(EXISTING & PROPOSED)
-  PRIVATE OPEN SPACE

### SPECIAL OPEN SPACE FEATURES

-  MARINE LIFE REFUGES &  
ECOLOGICAL RESERVES

#### CERTIFICATION

I HEREBY CERTIFY THAT THE RESOURCES ELEMENT, A PART  
OF THE ORANGE COUNTY GENERAL PLAN WAS ADOPTED  
BY THE ORANGE COUNTY PLANNING COMMISSION ON 1-28-86  
AND ADOPTED BY RESOLUTION NUMBER 86-193 BY THE  
ORANGE COUNTY BOARD OF SUPERVISORS ON 2-19-86

Robert G. Fisher  
Director Of Planning  
Environmental Management Agency

#### NOTE:

This is a general depiction of program  
implementation. The implementation of  
corridors is not presented. The map is  
intended to focus on implementation of  
the open space and conservation nodes.







U.C. BERKELEY LIBRARIES



C124907032

LIBRARY OF THE UNIVERSITY OF CALIFORNIA